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# SCIENTIFIC INFORMATION REPORT

Biology and Medicine

(23)

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SCIENTIFIC INFORMATION REPORT

Biology and Medicine (23)

This is a serialized report consisting of unevaluated information prepared as abstracts, summaries, and translations from recent publications of the Sino-Soviet Bloc countries. It is issued in six series. Of these, four, Biology and Medicine, Electronics and Engineering, Chemistry and Metallurgy, and Physics and Mathematics are issued monthly. The fifth series, Chinese Science, is issued twice monthly, and the sixth series, Organization and Administration of Soviet Science, is issued every 6 weeks. Individual items are unclassified unless otherwise indicated.

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## I. FEATURE ITEM

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## II. BIOLOGY

Bacteriological Warfare2. Military Studies of Pathogen and Toxin Detection Reported

"A Comparative Study of Different Methods of Rapid Observation of Pathogenic Bacteria in Environmental Objects," by A. F. Dolgov, Voyenno-Meditsinskiy Zhurnal, No 2, 1962, pp 48-50 (from Referativnyy Zhurnal -- Biologiya, No 17, Sep 62, Abstract No 17B345)

"The comparative sensitivity of the haptochol flocculation reaction and the method of treating smears with specific fluorescing antibodies (second method) in observation of microorganisms in washings from different surfaces was studied, the effect of the nature of colored coatings (enamel, ethynol, PVC, dirt, and mastic on samples on the reliability and sensitivity of the methods was also explained. The haptochol flocculation reaction was set up according to A. V. Orlev's directions. The smears were stained with specific gamma globulin by the usual method. Heterogeneous agglutinating sera, physiological solution, and fluorescing gamma globulins from normal rabbits and horse serum served as controls. The spore from of STI vaccine strain and a freshly isolated culture of the typhoid pathogen were used as test microorganisms. Upon examination of suspensions from pure cultures (threshold sensitivity) and washings from stained metal objects, the second method was found to be more sensitive, i. e., it permitted observation of microorganisms in lower concentrations (~ 30 times) than the haptochol flocculation reaction. The nature of the (colored coatings) of the samples had no essential effect on the reliability and sensitivity of the methods investigated."

"A Comparative Evaluation of the Sensitivity of Certain Methods of Determining Botulinum Toxins," by R. Ye Konikova, Voyenno-Meditsinskiy Zhurnal (Military Medical Journal), No 2, 1962, pp 46-48 (from Referativnyy Zhurnal -- Biologiya, No 17, Sep 62, Abstract No 17B421, by Yu. Gendon)

"The sensitivity of the passive hemagglutination reaction according to Boyden, the ring precipitation reaction according to Gen and Chertkov, and biological tests on mice were studied comparatively for demonstration of types A, B, C, and E botulinum toxins. The passive hemagglutination reaction was found to be many thousands of times more sensitive than the ring precipitation reaction. The sensitivity of the passive hemagglutination reaction fluctuated by 8-10 times depending on the quality of the antisera

used for sensitization of the erythrocytes. In comparison with the biological test, the sensitivity of the passive hemagglutination reaction was higher, lower, or equal. Differing from the biotest, the passive hemagglutination reaction reveals not only botulinum toxins, but also present in the preparation. Considering that the passive hemagglutination reaction lasts only a few hours, the author deems it expedient to use this reaction for determining botulinum toxins."

### 3. Aerosol Chamber Patented

"An Apparatus for Studying Bacterial and Viral Aerosols," by V. P. Zhalko-Titarensko, USSR Certificate of Authorship No 135596, 15 Feb 61 (from Referativnyy Zhurnal -- Biologiya, No 17, Sep 62, Abstract No 17B14P)

"The apparatus is constructed in the form of a chamber of a disseminator, taps for taking samples, and compartments for animals. It differs from existing devices by its chamber, which is divided into two parts connected by a rubber bellows, making it possible to decrease the size of the chamber, and by a device for the creation of an artificial climate. These characteristics ensure standardization of the aerosol structure during sample collection."

### 4. New Soil Sterilization Method

"A Device for Electrical Sterilization of Soil," by Jiri Havelka, Czechoslovak Patent, C. 45 k, 4/54, No 97832, 15/12/60 (from Referativnyy Zhurnal -- Biologiya, No 17, Sep 62, Abstract No 17G493P, by Ye Parshina)

"A new method of sterilizing soil with an electric sterilizer is described. The power efficiency of the sterilizer is 100% of the thermal equivalent of the electrical energy. The sterilizer can also be used for heating and drying soil. It can be used on open ground. The principle of operation of the sterilizer is based on the fact that uniformly moistened soil has constant resistance and serves as a conductor between two electrodes of a closed circuit. In this process, the soil is heated to 100-110°C."

Basic Biology

5. Virus Physiology

"Application of Viral Physiology in the Study of Comparative Physiology," by V. L. Ryzhkov, Institute of Microbiology, Academy of Medical Sciences USSR; Moscow, Izvestiya Akademii Nauk SSR Seriya Biologicheskaya, No 4, Jul/Aug 62, pp 530-543

The problem of the application of the knowledge acquired in the study of the physiology of virus propagation for the solution of some of the problems of comparative physiology is discussed in the article. Data are presented on the effect of methylated xanthines and a number of other purines on the propagation of the virus causing tobacco mosaic disease.

6. Synthesis of RNA in Irradiated Chick Embryo Cells

"Synthesis of Ribonucleic Acids in Chick Embryo Cells Irradiated With Ultraviolet Rays," by M. Rosenberg and M. Rosenberegerova, Institute of Virology of the Czechoslovak Academy of Sciences, Bratislava; Bratislava, Acta Virologica, Vol 6, No 5, Sep 62, pp 400-403

The authors studied the effect of irradiation with ultraviolet light on the ability of chick embryo cells to multiply and on the synthesis of cellular ribonucleic acids. It was found that cell multiplication was completely inhibited by relatively small doses of radiation. Higher doses of radiation. Higher doses of ultraviolet light were required to cause a marked suppression of  $P^{32}$  incorporation into the ribonucleic acid fraction of cells. (FOR OFFICIAL USE ONLY) (COPYRIGHT by the Publishing House of the Czechoslovak Academy of Sciences, 1962)

Microbiology

7. Redox Potential and pH Changes in Bacterial Culture Media

"The Dynamics of Changes in the Oxidation-Reduction Potential and the pH of a Medium in Pure and Mixed Cultures of Bacteria. Report 3: Change in the Oxidation-Reduction Potential and pH of the Medium in Pure and Mixed Cultures of *Staphylococcus aureus*, *B. Proteus*, *P. pyocyaneus*, *E. coli*, and *B. prodigiosum*," by M. G. Gimranov, Bashkir Medical Institute; Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunologii, Vol 33, No 19, Oct 62, pp 139-140

"An electrometric determination of the oxidation-reduction potential (Eh) and the pH of meat-peptone bouillon (pH 7.2) in the dynamics of the growth of pure and mixed cultures of *Staphylococcus aureus*, *B. Proteus*,

*B. pyocyaneus*, *E. coli*, and *B. prodigiosum* was carried out in an apparatus equipped with two platinum (for determining the Eh) and antimony (for determining the pH) electrodes. The apparatus with the bacteria was kept at a constant temperature of 37°C in a thermostat. The determination of the Eh and pH in the cultures was carried out every 15-20 minutes during the first 7-8 hours and, later, every 24-48 hours. In one series of experiments, bacteria were seeded simultaneously (see Report 2, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 4, 1962, page 92, for detailed description of methodology). It was established by numerous experiments that the bacteria studied are arranged in descending order according to the intensity of the decrease in the oxidation-reduction potential of the medium: *B. Porteus*, *E. Coli*, *B. pyocyaneus*, and *Staphylococcus aureus*. When *Staphylococcus aureus* was cultured with other bacteria, the changes in the Eh and  $rH_2$  of the medium were almost analogous to their changes in pure cultures. In combined culturing of proteus with pyocyaneus, coli, prodigiosum, and aureus, the Eh and  $rH_2$  of the medium were changed as in a pure *Proteus* culture. After it had been established that the decrease in the oxidation-reduction potential of the medium in the combined development of *Proteus* with pyocyaneus or prodigiosum was the same type of change which occurred in a pure *Proteus* culture, experiments were arranged with definite advantages in the medium given to the first two bacteria: pure cultures of them were seeded into the apparatus, and when the Eh of the medium in cultures of pyocyaneus and prodigiosum dropped to zero, a suspension of *Proteus* was seeded. Under these conditions, the decrease in the oxidation-reduction potential of the medium proceeded slowly at the beginning, which was typical for pure cultures of pyocyaneus and prodigiosum, and later the potential of the medium began to decrease more rapidly, which was typical for pure *Proteus* cultures.

"Summarizing the results of the experiments, it must be noted that *Proteus* dominated all the other bacteria changes in the oxidation-reduction potential of the medium. The Eh and  $rH_2$  values, being objective indexes of changes which occur in a medium during dynamic growth of pure and mixed cultures of bacteria, are one of the important and earliest conditions which determine the extent of the subsequent participation of other factors."

#### 8. Calculation of Air Microflora

"Methods of Counting the Microflora of the Air During Its Decontamination," by V. I. Vashkov, Metody Issled. Dezinfekts., Dezinseks., i Deratizats. Preparatov (Methods of Investigation Disinfection, Disinsection, and Deratization Preparations), Moscow, Medgiz, 1961, pp 136-151 (from Referativnyy Zhurnal -- Biologiya, Nov 17, Sep 62, Abstract No 17B338, by V. Vlodavets)

"An evaluation of the effectiveness of bacterial aerosols and ultraviolet rays is carried out on the basis of a decrease in the amount of microflora in the air. An agent is considered effective if the number of microorganisms



in the air is diminished to 10% of the initial number or lower within 10-15 minutes after action. The virucidal properties of the preparations with respect to influenza virus are determined according to the decrease in the number of infected mice which have inspired the virus aerosol. A preparation is considered effective if 90-100% survival and the absence of lung affections in those mice placed in a box 10-30 minutes after dispersal of the disinfectant and 90-100% death of the controls are noted. A description of a number of devices for bacteriological investigation of the air is provided."

9. New Differential Medium for *P. pestis* and *B. pseudotuberculosis rodentium*

"A Differential Molybdenum Medium for Plague and Pseudotuberculosis Bacteria," by H. Ye. Gubina, T. T. Voronina, and N. P. Pobivantseva, Scientific-Research Antiplague Institute of the Caucasus and Transcaucasus; Moscow, Zhurnal Mikrobiologii, Epidemiologii, i Immunobiologii, Vol 33, No 19, Oct 62, pp 12-15

A modification of Andreyeva's medium for identifying pathogens of the enteric group was found to differentiate *P. petis* and *B. pseudotuberculosis rodentium* in 20-24 hours. The medium contains: 100 ml of ordinary bouillon of agar, pH 7.3; 1% glucose; rosolic acid (a 5% alcohol solution), 9.2% (medium turns red); ammonium molybdate, 0.4% (medium assumes a yellow tint); 1% glycerin; 1% urea; and  $\text{Na}_2\text{CO}_3$ , 17.5 ml of a 10% solution per 1,000 ml of medium. The medium can be preserved for one month after preparation and is thus recommended for use by epizootiological expeditions. When small doses were seeded, ammonium molybdate stimulated the growth of *P. petis* cultured on meat-peptone media to an identical extend as did other known growth stimulants (sodium sulfite, blood). In a study of 82 standard strains of *P. petis* and 79 pseudotuberculosis strains, the medium was bright red before inoculation with *P. petis*, which decolorized the medium in 20-24 hours; the pseudotuberculosis bacillus did not affect color.

Of the 79 pseudotuberculosis strains studied, 50, freshly isolated, were tested at the Leningrad Antiplague Port and City Observation Station. Five of the pseudotuberculosis strains were obtained as a result of modification of *P. petis* at the Saratov Institute "Mikrob."

10. Preparations of Plague Fractions

"A New Method of Obtaining Toxic, Immunogenic, and Fibrinolytically Active *P. petis* Fractions," by I. V. Domaradskiy, G. A. Yaromyuk, and A. P. Kalmykova, Dokl. Irkutskogo Protivochumn. In-ta (Reports of the Irkutsh Antiplague Institute), No 2, 1961, pp 43-44 (from Referativnyy Zhurnal -- Biologiya, No 17, Sep 62, Abstract No 17B398)

"Lyophilized *P. petis* vaccine strains were extracted with a 2.5M solution of urea. As a result of treatment of the extracts with ammonium sulfate, four fractions were obtained; fraction I was precipitated at 0.2 saturation, II, at 0.35, III, at 0.5, and IV, at 0.8 saturation. Fraction IV was most soluble in water. All fractions gave a marked reaction for protein and a Molisch reaction. Toxicity for mice as associated chiefly with fraction III. Fraction I, which had the highest immunogenicity for mice (it was more immunogenic than the initial strain), was the most toxic. Fraction I also had the most pronounced fibrinolytic activity."

11. Foot-and-Mouth Virus Studies

"Experience in Modernizing Methods of Typing Foot-and-Mouth Disease Virus," by I. I. Kindyakov and S. M. Filippovich, Tr. N.-I. Vet. In-ta. Kazakhsk. Akad. S.-Kh Nauk (Works of the Scientific-Research Veterinary Institute, Kazakh Academy of Agricultural Sciences), No 10, 1961, pp 47-50 (from Referativnyy Zhurnal -- Biologiya, No 16, Aug 62, Abstract No 16B58)

"A complement fixation reaction modification based on increasing the concentration of antigen is suggested to detect the presence in the virus of another type of antigen not demonstrable by the usual complement fixation reaction. Antigen is prepared from epithelium of tongue aphthae from cattle or from guinea pig paws (the methodology is given). The antigen was used in different dilutions (from 0.0025 to 0.2g). In the complement fixation reaction, the antigen is used in a dilution of 1:10 for the foot-and-mouth virus from guinea pigs and 1:2 for virus from cattle. It was established as a result of the investigation that certain strains of the virus have dissimilar antigenic structure."

12. Viability of Melioidosis Pathogen Determined

"The Survivability of the Melioidosis Pathogen in Water,"  
by A. D. Garmazova and M. A. Konstantinova, Dokl. Irkutskogo Protivochumn. In-ta (Reports of Irkutsk Antiplague Institute), No 2, 1961, pp 41-42 (from Referativnyy Zhurnal -- Biologiya,) No 17, Sep 62, Abstract No 17B336)

"It was found that the melioidosis pathogen proliferates well in river, sterile, distilled, and double distilled water kept at room temperature and in a thermostat and dies quickly when kept in a refrigerator."

13. Factors Affecting Smallpox Virus

"The Action of Certain Physical and Chemical Factors and Antibiotics on the Viruses of Smallpox and the Vaccine,"  
by E. M. Akatova, Vopr. Bakteriol., Virusol., i Immuniteta (Problems of Bacteriology, Virology, and Immunity), Moscow, 1959, pp 261-270 (from Referativnyy Zhurnal -- Biologiya, No 17, Sep 62, Abstract No 17B105)

"A rather high resistance of the smallpox virus to the action of temperature in comparison with the vaccine virus was revealed. Data on the high resistance of the smallpox virus during preservation in a dried form at room temperature and exposed to daylight were substantiated. Temperatures above 60°C quickly inactivates the smallpox virus in a liquid state. Therapeutic action of biomyxin on the virus in vitro and in vivo was noted."

14. Disappearance of Amino Acids and Growth of Microbial Cells Correlated

"The Effect of the Rate of Disappearance of Certain Amino Acids on the Yield of Live Microbial Cells; Report II," by N. A. Trofimenko and A. I. Vasil'yeva, Izv. Irkutskogo N.-I. In-ta Sibiri i Dal'n.Vost. (News of the Irkutsk Scientific-Research Institute of Siberia and the Far East), No 23, 1960, pp 107-109 (from Referativnyy Zhurnal -- Biologiya, No 17, Sep 62, Abstract No 17B400, by Yu. Ignatov)

"It was established by the paper chromatography method that the concentration of glutamic acid, serine, treonine, and proline and partially phenylalanine, histidine, methionine, and tryptophan diminishes during culturing of *P. petis* on a liquid, aerated medium. A definite relationship has been noted between the disappearance of these amino acids from the medium and the number of living microbial cells in it."

15. Toxic Effect of Some Substances on Bacteria

"On the Effect of Intoxicating Substances on the Development on *B. acetoethylicus* and *E. coli*," by M. B. Kupletskaya  
I. T. Nette, Biological-Soil Faculty, Moscow State University  
imeni M. V. Lomonosov; Moscow, *Mikrobiologiya*, Vol 31, No 2,  
Mar/Apr 62, pp 227-231

The results of the investigations which were conducted to determine the effect of three groups of substances, differing in the chemical structure of their nuclei, on the development of bacteria under aerobic and anaerobic conditions are reported in the article.

The first group of substances included 8-oxyquinoline, toluquinone, tetrahydronaphthohydroquinone, alpha- and beta-naphthol, phenol, m-nitrophenol, sodium pentachlorophenolate, o-oxdiphenyl, and acetylhydrazone of acetone. This group of substances depressed the development of *B. acetoethylicus* and *B. coli* under aerobic conditions with greater intensity than under anaerobic conditions.

The second group, consisting of sodium borofluoride, potassium rodanate, and 1,2-diiodoethane, depressed the development of the bacteria with greater intensity under anaerobic conditions than under aerobic conditions.

Mercuric chloride, ethanomercuriochloride, and tripropyl acetate make up the third group of substances. This group of chemicals inhibited the growth of the bacteria equally under aerobic and anaerobic conditions.

16. Tuberculosis Pathogen Treated by Ultrasound

"A Study of the Conditions of Adsorption of Soluble Antigen Isolated From Tuberculosis Mycobacteria Treated With Ultrasound," by V. A. Blagoveshchenskiy, G. I. Stepanchenok-Rudnik, and L. V. Zhulina, Institute of Epidemiology and Microbiology imeni Gamaleya, Academy of Medical Sciences USSR; Moscow, *Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii*, Vol 33, No 8, Aug 62, p 130

"The purpose of the work was a study of the conditions of the adsorption on aluminum hydroxide of soluble antigen obtained from BCG cultures treated with ultrasound.

"BCG cultures were subjected to the action of ultrasound waves under the following conditions: a microbial cell concentration of 40 mg per one ml of suspension, 100 ml of suspension, an irradiation time of 2

hours, ultrasound wave frequency of 800-1200 kc, and ultrasound power of 10 w/cm<sup>2</sup>. Antigen from the irradiated suspensions was extracted with trichloroacetic acid in the cold for 3 hours. After centrifugation at 6,000 rpm, the microbial mass was again extracted. The centrifugates were dialyzed against tap and then against distilled water and were then lyophilized. Antigen adsorption was carried out on aluminum hydroxide in an aqueous solution and in acetate, phosphate, and phosphate-citrate buffer solutions at different pH, ionic strength, and temperature values. The extent of adsorption was established by the reaction of precipitation of supernatant liquid with rabbit antiserum to BCG or tuberculosis strain No 35. Elution was effected with 15 M Na<sub>2</sub>HPO<sub>4</sub>. Complete adsorption of antigen in aqueous solution occurred at antigen-aluminum hydroxide ratios of 1:4-1:10. Antigen adsorption in phosphate and phosphate-citrate buffer was incomplete at all pH values tested. Complete antigen adsorption at antigen-hydroxide ratios of 1:4, 1:3, 1:1, and 2:1 was observed in acetate buffer at pH 4.8. In experiments with acetate buffer of different ion strengths, complete adsorption was observed only in the case of 100 N buffer at pH 6.2. Soluble antigen was well eluted by an M 15 NaHPO<sub>4</sub> solution.

"Experiments on antigen adsorption from acetate buffer carried out at different temperatures (4-21°), showed that complete adsorption did not depend on temperature and that adsorption occurred with an almost adequate degree of completeness in 30 minutes.

"Thus, complete adsorption of soluble antigen on aluminum hydroxide occurred from aqueous solution of antigen or from a solution of antigen in acetate buffer within the neutral pH zone at an antigen-aluminum hydroxide ratio of 1:4."

III. Control Sciences

17. Computer in Cybernetics Laboratory of Institute of Surgery

"Cybernetics in the Service of Medicine," by S. Pospelov;  
Moscow, Meditsinskiy Rabotnik, 15 Jun 62, p 3

A. V. Vishnevskiy reports that a Ural-2 computer and several auxiliary computers have been installed in the recently established Laboratory of Cybernetics at the Institute of Surgery imeni A. V. Vishnevskiy, Academy of Medical Sciences USSR. With the aid of these machines, it is possible to establish an initial diagnosis, find a precedent for a given disease in the literature, and reveal the frequency of any symptom of the disease. The Ural-2 is capable of diagnosing congenital heart failure, diseases of the blood, eye diseases, etc. It can be used to watch over a patient's condition during a complicated operation and even to regulate the condition automatically.

Academician A. A. Vishnevskiy is an active member of the Academy of Medical Sciences and is the Director of the Institute of Surgery. Aleksandr Semenovich Kharnas is the Senior Scientific Associate of the Laboratory of Cybernetics.

Photographs show physician D. V. Khodosh, mathematician A. I. Kurochkina, and Senior Scientific Associate A. S. Kharnas establishing a diagnosis with the aid of the Ural-2. Another photograph shows laboratory technician N. G. Livchak transferring information about the history of a disease to punchcards.

18. Development of a Teaching Machine in the USSR

"The Teacher and Cybernetics," by S. Yefimov, engineer; Moscow, Komsomol'skaya Pravda, 9 Oct 62, p 3.

The article discusses the work of Lev Naumovich Landa, Candidate of Pedagogical Sciences, who, with the help of S. P. Khlebnikov, a young engineer, has developed a machine to teach students how to think through grammatical problems and arrive at the correct answers. He has done this by formulating for a series of grammatical operations the algorithms for the logical order of steps which must be thought through in order to obtain the correct answer. These machines teach the student to "think" the author says, by virtue of the fact that he must perform these steps in their logical order before he reaches the correct answer. That is, the machine will not accept his answer as correct unless he has followed the order of the algorithm.

The article then discusses the application of this machine in the classroom. The American psychologist Porter discovered that for the effective transmission of learning the student should receive 150 reinforcements for a 20-minute lesson. Soviet scientists hope that the machine will be able to replace the teacher in giving the student the proper directions. "Now they are constructing a memory mechanism which, when attached to the machine, will be able to remember and systematize the student's mistakes. Universal computers can also be used for teaching."

In the future, the article concludes, "...the teacher will be in possession of means which will permit each student to learn according to a program which takes into account his individual peculiarities. There will be no more orientation toward the 'average student.' Programed teaching will permit an increase of 2-3 times, if not more, in the effectiveness of teaching."

#### 19. Machines Which "Learn From Experience"

"Animals and Machines -- Cybernetic Training," by Izrail' Gutchin; Yerevan, Kommunist, No 174, (8564), 26 Jul 62, p 4

This article discusses the current work being done in the Soviet Union on "trained machines," that is, machines which can be taught a specific task. In his introductory remarks, the author calls attention to the work done at the Institute of Automatics and Telemechanics in Moscow, where a machine trained to recognize certain numbers was also able to recognize the same numbers in slightly altered form.

Behind this machine is the hypothesis of "compactness." The author states that according to the hypothesis of compactness, a "compact" region of the brain of a human being (or an animal) is excited by different variations of the same image (for example, various drawings of the same letter). Upon seeing any representation of a given image, the same region of the brain is excited, which also gives the possibility of identifying the image. With an increase in the volume and diversity of the material used in the training, naturally, the reliability of the identification grows.

"Is the hypothesis of compactness really realized in living organisms? This question is being studied in the laboratory of cybernetics, headed by Prof S. Braynes, in the Institute of Surgery, Academy of Medical Sciences," the article states.

Experiments have been carried out on both rats and monkeys. The rats were presented with two photographs, one a portrait of a man and the other a landscape. In the trials, the rat "learned" that the food was always behind the portrait, no matter what the relative position of the two

photos was. The rat was then presented with a completely different landscape and a completely different portrait. Again the food was behind the portrait; however, of the first ten rats, only one unerringly sought the food there.

More conclusive results were obtained from the experiments on monkeys. The monkey was presented with drawings of two spots, Type A spot and Type B spot. The food (an orange) was always behind the Type A spot. Then the monkey was shown two spots which were entirely different, yet still related to the A and B types. No matter what the relative position of the two spots was, the monkey always sought the food behind the Type A spot.

"Does there develop in the monkey a generalized 'compact' image of spot A 'in general' and spot B 'in general?' It is possible that the identification of the image was realized by the principle of 'compactness...', " the article states.

The Institute of Biophysics, Academy of Sciences USSR, is working on a different approach to this problem. A machine is programmed to classify the characteristics by their characteristics. For example, a machine that is trained on silhouettes of a man and a cat is then presented a new cat silhouette and must classify it. At first, the machine make many mistakes. However, the author points out, this fact is not important; what is important is "...the fact of accumulation of experience by the machine, thanks to which its 'qualification' increases, and the errors gradually decrease. It is important that it has become possible to program the very process of learning by recognition."

Among the future applications of such a machine, the author concludes, is the identification of illnesses by their characteristics, i.e., their symptoms.

## 20. Trapeznikov Optimistic About Future of Cybernetics

"Cybernetics -- Servant of Mankind," by Vadim Trapeznikov, director, Institute of Automatics and Telemechanics, Academy of Sciences USSR; Minsk, Sovetskaya Belorussiya, No 160 (9474), 10 Jul 62, p 4

In this article, Vadim Trapeznikov, director of the Institute of Automatics and Telemechanics, Academy of Sciences USSR, discusses the future of cybernetics. He says that in Russia there are already machines which not only solve but also pose problems, although they are still rather simple problems.



The author notes that although in many areas computers can outperform the human brain, there are still areas in which cybernetic development lags. First among these is in "the ability to resolve problems on the basis of associations." In this respect, he says, machines are still "narrow specialists." Achievement in this area has been limited by insufficient study of the processes which operate in the human brain. As the "secrets" of the workings of the brain are uncovered by biologists, "...the designers of cybernetic machines will be able to model the mental processes all the more exactly and effectively, creating an electronic -- and possibly, not only electronic -- analogue of the brain even more similar to the original." Trapeznikov doubts that work on this machine will be completed within this century.

Noting the fact that the quantity of scientific literature doubles every 12 years, the author concludes that machines will have to be used for the collection, systematization, and abstraction of scientific literature.

21. Book on Cybernetics in Physiology and Medicine Reviewed

Kibernetika v Meditsine i Fiziologii (Cybernetics in Medicine and Physiology), by V. V. Parin and R. M. Bayevskiy, Medgiz, Moscow; Moscow, Vestnik Akademii Meditsinskikh Nauk SSSR, No 10, 1962, inside back cover

"The book is intended for physicians of all specialties and is a brief introduction to cybernetics. It contains, in an easy-to-read form, the basic information on cybernetics and its application in medicine."

22. Soviet Bioelectrostimulator Discussed by Czechoslovaks

"Programmed Control of Treatment," by Engr V. Capla, Member of the Cybernetics Commission of the "Jan Ev. Purkyne" Czechoslovak Medical Society, Prague; Prague, Veda a Technika Mladezi, No 15, 27 Jul 62. pp 511-512

The authors discussed the principles involved in the design and use of the "bioelectrostimulator," which was built at the Division of Cybernetics of the Computer Center of the Ukrainian Academy of Sciences. Uses of the equipment in medical facilities in the USSR are briefly discussed.

23. Cybernetics in Bulgaria

"Cybernetics in Our Time," by Engr Tr. Petkov, Docent at the Machine and Electrotechnical Institute; Sofia, Rabotnichesko Delo, 23 Sep 62, p 4

In Bulgaria, individual enthusiasts, chiefly young people, are studying the problems of cybernetics. In the field of industrial cybernetics, most of the work is being done by scientific workers and students from the Department of Electrification and Automation of Industry at the Machine and Electrotechnical Institute. Several automatic optimizers have been built there, and elementary self-adjusting systems are being developed. One of the optimizers has been tested under production conditions at the "Lenin" Metallurgical Plant. In some of the courses taught at the department, students are given an elementary acquaintance with industrial cybernetics, and the best are assigned their diploma work in this field. Beginning next year, a course in automatic computer systems (actually, a course in the fundamentals of industrial cybernetics) will be given.

Those doing work in biological cybernetics include individual scientific workers at the Military Medical Institute, the Higher Medical Institute at the Bulgarian Academy of Sciences, the Institute for Pediatrics, and the Institute for the Protection of Labor. A group composed of these workers and associates from the Machine and Electrotechnical Institute recently were successful in simulating certain signal reactions of man, by using a computer at the Computer Center. Work is also being done on mathematical cybernetics at the Computer Center and at the Physicomathematical Faculty and on linguistic cybernetics at [Sofia State] University.

Computing machines that can be used in cybernetics are being developed at the Department of Fundamentals of Electronics and at the Department of Semiconductors and Industrial Electronics at the Machine and Electrotechnical Institute, at the Computing Center, and at the "Elektronika" Developmental Enterprise. Except for the joint project described above, the remaining work in cybernetics is being carried out by individual scientists almost without contact with each other. However, conferences were recently held where it was proposed to the State Council for Science that a commission on cybernetics be created and attached to the Bulgarian Academy of Sciences.

In Bulgaria, little has been done concerning the philosophical aspects of cybernetics. During the last year, conferences have been held on cybernetics, but they served only as an introduction and were quite rudimentary in their approach to the subject. This situation exists because there are very few people in Bulgaria who have an accurate understanding of the problems of cybernetics. The opinion prevails that these problems are very interesting, but that they are also very remote from the needs of the present. As a result, they are not seriously

considered. Others think that cybernetics, like rocketry and space flights, is beyond the scope and resources of Bulgaria. Consequently, no preparations have been made to bring Bulgarian science into the sphere of cybernetics. Subjects in this field have only with great difficulty made their way into the training plans of higher academic institutions. This is also true for the course plans of the institutes under the academy and other scientific-research institutes in Bulgaria. As regards study abroad, at the present there are not more than three postgraduate students in the USSR.

#### 24, Experiments in ESP

"Telepathic Experiments of Professor Vasil'yev," by Tibor Lukacs; Budapest, Orszag-Vilag, Vol 6, No 36, 6 Sep 62, pp 10-11

Soviet experiments in ESP which were begun in 1932 and have been continued for decades are described by Prof L. L. Vasil'yev of the Leningrad Brain Research Institute in an interview given to Tibor Lukacs, Hungarian correspondent of source:

In 1932, I conducted experiments with three women subjects who were especially receptive to telepathy. One subject, accompanied by an institute research worker, was placed in a room separated from my office by a control room. It was the function of the researcher to engage the subject in conversation and thereby distract her from the experiment. At the same time, the subject held a rubber bulb which she squeezed continuously. The bulb was connected by tube to recording apparatus located in the room between the subject's room and my office. A wire connected my office with the room containing the recording apparatus. As long as the subject was awake, the squeezing of the bulb produced regular zig-zags on the recording apparatus. These flattened out to a straight line when she was asleep. The object was to determine whether the subject would go to sleep and waken at intervals selected by me at random. My signals for sleep or wakening were also registered on the recording apparatus. In each case, I was able to waken the subject or put her to sleep at will.

Later, the rubber bulb and tube were replaced by electronic equipment so that it was possible to perform the same experiment when my subject was in a different house or in a city far removed from me. The electronic device not only registered sleep and wakening, but showed with absolute clarity whether the signal to awaken had been received by subject although she was too sleepy to comply.

C-O-N-F-I-D-E-N-T-I-A-L

In the course of the experiments, such a degree of harmony was established between the subjects and the hypnotists working with me that it became possible to practice "selective telepathy": when three subjects were in the same room, only the selected one would sleep or waken. After the experiments, the subjects could always tell positively which of the three hypnotists had put her to sleep.

The next step was an effort to determine the nature of these signals which can be transmitted through walls and over such great distances. We went on the assumption that if the signals were bio-currents produced by the brain, they must emit electromagnetic waves which should be receivable on physical receiving sets. So far this attempt has been unsuccessful; our present instruments are not suitable for registering these waves.

Another approach was made by placing the subject first in a cubicle completely enclosed with steel and then with lead plates. In each case, the subject continued to receive signals and to sleep and waken on command.

IV. MEDICINE

Aerospace Medicine

25. Aerospace Medical Aspects of Flights of Cosmonauts Discussed at Conference

"Life in Space; A Scientific Session in the Academy of Sciences USSR"; Moscow, Pravda, 4 Oct 62, p 2

"A session of the Department of Biological Sciences, Academy of Sciences USSR, held in Moscow on 1 and 2 October 1962, was dedicated to the fifth anniversary of the launching of the first artificial earth satellite.

"The opening address was delivered by Academician N. M. Sisakyan. He stated that not a single important event in science and technology had such a far-reaching effect on the progress of civilization as the successful launching of the first artificial earth satellite.

"The report of O. G. Gazenko and V. I. Yazdovskiy contained many valuable inferences concerning the vital activity of a human organism in space. The report covered particularly the circumstances surrounding the flight of cosmonauts Andriyan Nikolayev and Pavel Popovich.

"The self-control of both cosmonauts remained at a high level even at launching; they showed no symptoms of depression or apprehension. As is known, the schedule followed by the cosmonauts included self-observation and detailed recording of results. Physicians note that both cosmonauts, carried out special psychological and vestibular assignments perfectly. There was practically no difference in the time it took them to solve many arithmetic problems (adding mentally): each one made only one mistake. Both A. Nikolayev and P. Popovich attempted also to determine their positions in space with their eyes closed during 'free floating.' Entries in the logbooks indicate that this was not possible.

"Various problems in cosmic biology and medicine were discussed at the session. Those problems included principles of devising an artificial environment within the cabins of space vehicles, providing safety from radiation in outer space, and special methods of training cosmonauts." [See item 30.]

26. Data on Manned Space Flight Reported

"Life in Space Is Possible!"; Moscow, Moskovskaya Pravda,  
7 Aug 62, p 2

This article is a summary of an article by O. Gazenko, Doctor of Biological Sciences, and V. Yazdovskiy, Doctor of Medical Sciences, which was published in Aviatsiya i Kosmonavtika, No 7, 1962. Data collected as a result of the "Vostok 1" and "Vostok 2" flights are discussed.

It is noted that the flights of Gagarin and Titov have demonstrated that flight in space has no adverse effects on the human organism. Titov's reactions as indicated by instruments, his experiences as he related them, and the results of thorough physical examination after his return to earth are described. Results of the Gagarin and Titov flights showed that weightlessness does not impair the efficiency of a human organism. The symptom complex that developed in G. S. Titov during his flight merits attention, but no information is yet available on the mechanism of the emergence of these disturbances.

27. Training of Astronauts Discussed

"Where Astronauts Are Being Trained," by A. Osipov; Moscow, Meditsinskiy Rabotnik, 7 Aug 62, p 1

The author notes that painstaking efforts of medical specialists, biologists, engineers, and designers preceded the successful flights of Yuriy Gagarin and Cherman Titov. A special training routine and conditioning exercises were prescribed for the astronauts. The workday of Soviet astronauts begins at 0700 hours with special physical exercises preceding breakfast, which is followed by training in radiotelegraphy. Part of the group spends some time in an altitude chamber where conditions approximating those encountered by space vehicles in orbit are simulated. Some train on medical apparatuses and stands; others go to an airport where transport planes and high speed interceptors await them. The workday ends with physical exercises in a gymnasium. The rest of the day the astronauts spend as they please.

Scientists have not yet been able to explain how weightlessness affects the human organism. It is difficult to simulate weightlessness for a long period on earth. Electrocardiograms showed that Yuriy Gagarin tolerated weightlessness very well throughout the entire period of his flight. Some vegetative disturbances were noted in Titov during the period of weightlessness. Specialists connect these disturbances with

extreme irritation of the vestibular apparatus. Morbid symptoms disappear almost entirely when the astronauts assume their original pose and make no sharp movements.

Changes in the conditioning routine of the astronauts have been introduced recently to prevent harmful effects of weightlessness and G forces on the human organism. Astronauts undergo thorough examinations repeatedly when they are assigned to train on rotating swings and special stands. Swimming and diving into water is also part of the training program of astronauts. Specialists believe that weightlessness can be conquered by such exercises.

## 28. Applications of Bionics in Space

"Bionics and Space," by A. Prokhorov, Member of Presidium of Council on Cybernetics, Academy of Sciences USSR; Moscow, Trud, 14 Aug 62, p 2

The author discusses a new branch of knowledge, bionics, which is expected to help scientists solve various problems of interplanetary space flights.

Bionics has to do with the study of biological systems and processes, and the application of the knowledge acquired to solve problems in engineering. One of the most important problems in bionics is development of electronic computers.

The reliability of the automatic systems currently in use obviously is not as high as that of the human nervous system. The elements that form the human nervous system exceed in quantity and in quality any machine that has been constructed or might be constructed in the future. The human nervous system represents an economical and reliable operating system which can outperform any modern high-speed electronic machine. Engineers who design complex cybernetic machines there have much to learn from nature.

Capabilities of various animals are discussed. Flies are able to detect sounds of lowest intensity with the aid of tiny "antennae." Bats irradiate ultrasound waves with the aid of their adaptive organs. Absorbing the signals reverberating from surrounding objects, bats not only orient themselves well in total darkness, but are able also to hunt for small insects.

The tail of a rattlesnake contains a supersensitive organ capable of detecting with great accuracy all changes in temperature. Scientists are familiar with the "mechanism" by which fish "sense" in time an approaching storm. This "mechanism" is the air bladder. Changes in its size as a result of even insignificant fluctuations in the atmospheric pressure are communicated to the nervous system of a fish.

By studying different properties of various living organisms, bionics is unlocking the door for their possible utilization in space travel. Bionics specialists have recently considered the possibility of using a living organism with its multitude of perfect control "mechanisms" in place of some complex mechanical system.

Results of preliminary investigations have shown that any living tissue formation possesses a definite property of irritability. An isolated nerve fiber is capable of responding to an electric current with reactions that can be gauged accurately. Excitation of the ocular nerve, for example, is proportional to the logarithm of the intensity of light.

It is possible to visualize animals aboard a space vehicle going to Mars, Venus, and other planets. These animals in combination with simple mechanical systems will perform complicated tasks in controlling the vehicle. The weight of such a vehicle will be decreased and its useful payload increased.

Experience of Soviet scientists shows that not even the most daring predictions can catch up with reality. The best proof of this are the successful flights of space vehicles "Vostok-3" and "Vostok-4."

## 29. Review of Space Flights

"Space Records Are Falling"; Prague, Letecky Obzor, No 9, Sep 62, pp 300-301

The article compares the Soviet-US manned space flight achievements, showing the superiority of Soviet efforts. The writer reviews some of the findings of space travelers to date, prospects for manned space stations, and rendezvous in space, perhaps by landing smaller spacecraft on larger ones.

The article states that the USSR has already proved its ability to launch a space capsule with a crew around the Moon and back to Earth. All that remains is the evaluation of measurements and tests made during the Vostok 3 and 4 trips, including effects of radiation on bacteria



and plants sent on these flights. If studies prove that man need not be specially shielded during flight around the Moon, such flights are only a short time away. On the basis of such a trip, actual landing on the Moon and return to Earth would be possible, the article states.

30. Cosmonauts' "Errors" Reported

"Popovich Committed Only One Error"; Berlin, Neues Deutschland, 3 Oct 62, p 4

Soviet scientist Dr Oleg Gazenko on 1 October 1962 announced additional results obtained from the clinical-physiological tests conducted on cosmonauts Nikolayev and Popovich following their flight. According to the tests, neither of the cosmonauts showed any evidence of pathological changes. Popovich's pulse rate during flight returned to normal after about 5-6 hours, and in Nikolayev's case, in about 10-12 hours. During most of the flight, its registered between 50 and 80 beats per minute.

The biological data recorded by scientists while the cosmonauts were asleep do not deviate from normal. The cosmonauts' notes concerning different tests were carefully examined. According to Gazenko, certain deviations were noted only after a minute perusal of all collected data. Both Popovich and Nikolayev made only one mistake each in solving the special psychological problems assigned to them, which they would not have made on earth. [See item 25.]

31. Space Team Could Have Stayed Up Longer

"Conquest of the Moon," by SR; Budapest, Magyar Ifjúság, Vol VI, No 34, 25 Aug 62, p 3

"After the successful landing of Vostoks III and IV, Prof Karl Gizin stated that prerequisites had already been established for a space flight of not only 10-12 days, but for one considerably longer."

Antibiotics32. New Medicinal Preparations

"Eficillin" Moscow, Meditsinskiy Rabotnik, 26 Aug 62, p 3

Eficillin, the hydriodide salt of the diethylamino ester of benzylpenicillin, is a white powder which forms a suspension in water suitable for injections. It is slightly toxic. Its antibacterial action is similar to that of penicillin. When introduced into the organism, it accumulates in the lungs where it is retained for prolonged periods of time. In doses of 20,000 units per kilogram body weight, it produces no side reactions. It is indicated for the therapy of pneumococci and streptococci infections and other acute infections of the respiratory organs. The suspension of eficillin is applied intramuscularly only. Its intravenous or subcutaneous administration is not permitted. Production of the drug will be started in 1963 by the Riga Plant of Medicinal Preparations.

Cardiovascular Diseases33. Etiology and Pathogenesis of Hypertension

"On the Role of Psychogenic Factors in the Development of Hypertension," by Prof S. I. Karchikyan (Leningrad); Kiev, Vrachebnoye Delo, Vol 44, No 8, Jul 62, pp 16-22.

Observations established that cardiovascular diseases are the most frequent cause of disturbed cerebral circulation. It is assumed therefore that the problem of the vascular diseases of the cerebrum is closely linked with the problem of arterial hypertension, the etiology and pathogenesis of which are objects of attention of clinicists and theoreticians. As yet there is no single point of view on the problem. The theory advanced in the USSR by G. F. Lang that "the main etiological and pathogenic factors which lead to the development of hypertension are mental traumas and mental over tensions induced by prolonged inhibitory emotions of a negative character" now prevails. Some authors disagree with this theory, claiming that it is erroneous to blame unpleasant or so-called negative emotions for the etiology and pathogenesis of hypertension and that other factors are undoubtedly involved. Chronic infections and intoxications may be factors which also contribute to the development of hypertension and should be taken into consideration in the therapy of the disease.

Diagnosis34. Improvement of Plague Diagnosis Sought

"A Search for Methods of Improving the Biological Method of Plague Diagnosis," by K. S. Karpuzidi, M. S. Drozhevskina, T. I. Kharitonova, D. I. Kolotiyenko, and Z. D. Khakhina, Tr. Rostovsk.-n/D. N.-I. Protivochumn. In-ta (Rostov-na-Donu Scientific Research Antiplague Institute), No 18, 1961, pp 30-37 (from Referativnyy Zhurnal -- Biologiya, No 13, Jul 62, Abstract No 13B402, by Yu. Ignatov)

"To accelerate the biological diagnosis of plague, the resistance of experimental animals--white mice and guinea pigs--was diminished for 2 days before the experiment by a single total irradiation with X rays (an RUM-3 apparatus, 180 kv, 10 ma, distance 40 cm, 0.5 mm - 1 mm Al filter, 32 rpm, a single 500 r dose). Animals treated with cortisone by Pokrovskaya's method were used for comparison. It was shown that the use of irradiated animals is not suitable and that the performance of the test on mice treated with cortisone accelerated isolation of the pathogen on the second day; the rapid accumulation of a large quantity of microorganisms in the organism of the mice so treated increases the significance of the microscopic method of investigating smears from the organisms of the animals on the 3d day after infection."

35. Classification of Various Pathological Conditions of the Organ of Hearing

"Classification of Various Afflictions of the Acoustic Analysor and Their Differential Diagnosis," by Doctor of Medical Sciences G. I. Grinberg, Leningrad Scientific Research Institute of the Ear, Throat, Nose, and Speech; Kiev, Zhurnal Ushnykh, Nosovykh, i Gorlovykh Bolezney, No 4, Jul/Aug 62, pp 3-8.

The author offers for consideration five designations for various morbid conditions of the acoustic analysor. Those designations are otitis media, otosclerosis, otitis interna, neuritis acustica, and central affliction of the acoustic analysor. He claims that each of the designations mentioned indicates not only the nature of a pathological process, but also locates it. Twelve tests are recommended for the differential diagnosis of these morbid conditions. Five of the tests are designed to differentiate ailments of the sound-conducting and sound-perceiving apparatuses; four tests are designed to localize pathological process at various levels of the sound-perceiving apparatus. Three of the tests are used to determine the functional condition of cortical section of the acoustic analysor.

36. Ultrasonic Receiving Apparatus for Laryngologists

"Ultrasonics Help the Laryngologist"; Moscow, Meditsinskiy Rabotnik, Vol 25, No 70, 31 Aug 62, p 3.

"Investigations conducted at the Laboratory of Pathophysiology of the Ear, Eye, and Nose Scientific Research Institute of the Ministry of Health RSFSR established that ultrasound with a frequency of 200,000 oscillations per second are able to evoke auditory perceptions through the cranium. This fact made it possible to utilize ultrasound for the diagnosis of different diseases which induce deafness (otosclerosis, neuritis of the auditory nerves, etc.). A special apparatus which makes it possible to receive ultrasound oscillations of minimal intensity is now used for this purpose."

37. Instruments for Interpretation of Gastric Functions

"Attainments of Science in Their Practical Application for Prompt Diagnosis," by G. Akmolinskiy, Riga; Moscow, Meditsinskiy Rabotnik, Vol 25, No 70, 31 Aug 62, p 3

Yevgeniy Linar, a Candidate of Medical Sciences and Senior Scientific Associate at the Institute of Experimental and Clinical Medicine of the Academy of Sciences Latvian SSR, has jointly with engineers and technicians designed a number of instruments and apparatuses which make possible the determination of the tonus, motor activity, temperature, and acidity in the upper, middle, and lower parts of the stomach simultaneously. The Riga VEF plant is now assembling gastric polygraphs and acidomechanographs designed in the Riga Institute of Experimental and Clinical Medicine. Dr Linar says that soon it will be possible to interpret information from the gastric organs transmitted by radioactive pills swallowed by the patient.

38. Collagen Diseases

"On the Phases in the Course of Collagen Diseases," by Docent I. A. Mel'nik, Faculty of Therapeutic Clinic, Ternopol' Medical Institute, with the Oblast Clinical Hospital as its base; Kiev, Vrachebnoye Delo, No 7, Jul 62, pp 77-80.

The pathological process of collagen diseases is characterized by three distinct periods or phases: allergy, sepsis, and dystrophy.

## C-O-N-F-I-D-E-N-T-I-A-L

The first phase is marked by changes in the reactivity of the organism as a result of the sensitization of the organism to infections of various etiologies, i.e., the development of nonspecific infectious allergy. The first phase may continue for weeks, months, and even years.

The second phase is expressed by manifestations of intoxications characterized by general debility, fatigue, headaches, chills, high temperatures, and changes in the blood picture.

The third phase is characterized by the disturbance of the metabolic processes and acute organic dystrophic changes marked by functional deficiency.

The group of collagen diseases should include only those diseases at the basis of which is the progressive degeneration of connective tissue and vascular walls with simultaneous manifestations of degeneration, proliferation, and inflammation; diseases which are of an infectious-allergic nature with the allergy being of a nonspecific character; and diseases which are characterized by the development of phases or periods, with marked transition of one phase into another.

Epidemiology39. Participation of Ticks in Plague Epizootiology

"The Problem of the Role of Ticks in the Epizootiology and in the Occurrence of Plague in Natural Foci in the Northwestern Precaspian Region," by K. S. Karpuzidi, V. P. Bozhenko, and K. G. Bichul', Sb. Nauchn. Rabot Elistinsk. Protivochumn. St. (Collection of Scientific Works of the Elista Anti plague Station), No 1, 1959, pp 109-117 (from Referativnyy Zhurnal -- Biologiya, No 16, Aug 62, Abstract No 16kl42, by V. Vashchenok)

"On the basis of analysis of literature data, experimental data obtained in 1951 in experiments on infection of Rhipicephalus schulzei and Ixodes laguri laguri ticks with plague, and results of bacteriological investigation of ticks collected during the spring-summer season of 1948 in Limanskiy Rayon of Astrakhanskaya Oblast in areas where an intensive plague epizootic among susliks was in process, the authors conclude that under the conditions of Precaspian natural foci, R. schulzei and I. l. laguri ticks are not long-term reservoirs and active sectors of plague under natural conditions."

40. Laboratory Outbreak of Hemorrhagic Fever Revealed

"A Laboratory Outbreak of Hemorrhagic Fever With a Nephritic Syndrome (Clinical-Epidemiological Characteristics)," by S. M. Kulagin, N. I. Fedorova, and Ye. S. Ketiladze, Institute of Epidemiology and Microbiology imeni Gamaleya, Academy of Medical Sciences USSR and Institute of Virology imeni Ivanovskiy, Academy of Medical Sciences USSR; Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, Vol 33, No 10, Oct 62, pp 121-125

Important data on the mechanism of transmission of hemorrhagic fever with a nephritic syndrome were obtained during an outbreak involving 113 persons in a division of a scientific research institute (not specified) in 1961. The high susceptibility of humans was verified by the fact that 89.6% of persons working constantly in infected areas and 42% of persons who had visited such areas 1-3 times contracted the disease. An incubation period of 14-32 days (an average of 20.4 days) was precisely established in 32 cases. Immunity to reinfection in convalescents was substantiated: five persons constantly associated with the pathogen had had the disease 1-3 years previously and did not become ill in the outbreak described. The source of infection was a group of mouselike rodents brought into the building approximately one month before

the outbreak by an expedition which had been studying tick-borne encephalitis in Kirovskaya Oblast. The rodents remained asymptomatic. A diagram of the one-story building shows the arrangement of laboratories along a central corridor with exits at both ends. Of the four mechanisms of transmission proposed and discussed (transmissive, contact, alimentary, and aspiration), the aspiration mechanism was considered most likely in view of the circumstances surrounding some of the cases (outsiders who had visited the division only once contracted the disease). Contagion was ruled out.

The clinical course of the disease and the blood picture are described. Epidemiological analysis of the outbreak showed that physicians of the polyclinic network were completely unfamiliar with the clinical picture of hemorrhagic fever with a nephritic syndrome, and did not diagnose any cases correctly until a general announcement of the outbreak was made. The diagnosis was established on the basis of a study of the clinical picture in 85 patients hospitalized in the clinic of the Infectious Disease Hospital, Institute of Virology imeni Ivanovskiy. Antiepidemic measures, instituted immediately upon identification of the disease, consisted of rodent extermination and disinfection.

The authors consider their conclusions valuable because the conditions of the outbreak, which occurred outside of natural foci, approximated experimental conditions. Despite the conclusions of Margulis (1960), it was established that the virus survives drying and maintains high infectiousness in the environment for a long period. Attempts to isolate the virus were unsuccessful.

#### 41. Chita Institute Reports on Tick-Borne Encephalitis

"Zoological-Parasitological Observations in Foci of Tick-Borne Encephalitis in Petrovsko-Zavodskiy and Krasnochikoyskiy Rayons of Chitinskiy Oblast," by Yu. D. Ochirov, O. N. Gorlova, and S. Yu. Dmitriyev, Materialy Nauchn. Konferentsii, Posvyashch. 20-Letiyu Chitinsk. N.-I. In-ta Epidemiol., Mikrobiol. i Gigiyeny po Probl. Vopr. Krayevoy Epidemiol., Mikrobiol., i Immunol., 1961 (Data From a Scientific Conference Devoted to the 20th Year of Chita Scientific Research Institute of Epidemiology, Microbiology, and Hygiene on Problems of Regional Epidemiology, Microbiology, and Immunology, 1961), Chita, 1961, pp 88-89 (from Referativnyy Zhurnal -- Biologiya, No 17, Sep 62, Abstract No 17K126)

[No abstract given.]

42. Tick-Borne Encephalitis Virus Carriers

"The Water Rat (*Arvicola terrestris* L.) as a Carrier of Viruses of the Tick-Borne Encephalitis Group," by A. V. Dubov, Materialy Plan.-Metod. Soveshchaniya po Zashchite Rast. Zony Urala i Sibiri, 1960 (Data From the Planning-Methodological Conference on Plant Protection in Zones of the Urals and Siberia, 1960), Novosibirsk, 1961, pp 82-85 (from Referativnyy Zhurnal -- Biologiya, No 17, Sep 62, Abstract No 17K132)

"One strain of virus of the tick-borne encephalitis group was isolated in Novosibirskaya Oblast from the brains of 349 water rats grouped into 70 samples on tissue cultures."

43. Decontamination of Tick-Borne Encephalitis Foci

"The Development of Methods of Simultaneous Disinsection and Deratization in Foci of Tick-Borne Encephalitis," by S. A. Shilova, and G. B. Mal'kov, Tr. Tsentr. N.-I. Dezinfects. In-ta (Works of the Central Scientific Research Disinfection Institute), No 13, 1960, pp 307-315 (from Referativnyy Zhurnal -- Biologiya, No 17, Sep 62, Abstract No 17K134)

[No abstract given.]

44. Incidence of Disease in Czechoslovakia

"Report on the Epidemiological Situation in Czechoslovakia in June 1962," by A. Kazmar, MD, and J. Roudny, Doctor of Natural Sciences; Prague, Casopis Lekarů Ceskych, No 37, 14 Sep 62, p 1136

The article reviews the incidence of various diseases in Czechoslovakia during June 1962. Among the data, 17 cases of brucellosis in humans are listed. The authors indicate that in many cases these are older infections only now being discovered as a result of increased attention to hygiene in agricultural establishments.

Prague, Casopis Lekarů Ceskych, No 40, 5 Oct 62, p 1215

The authors review the incidence of diseases in Czechoslovakia during July 1962. Among the diseases listed are six cases of brucellosis, all involving personnel employed in brucellosis



isolation centers; two cases of ornithosis among employees of poultry farms; and 13 cases of Q-fever among agricultural workers, and one case of laboratory infection with another form of rickettsia (R. mooseri). (FOR OFFICIAL USE ONLY) (COPYRIGHT by the State Medical Publishing House, Prague, 1962)

45. Foot-and-Mouth Disease Reported in East German Districts

"Foot-and-Mouth Disease Forces Quarantine Measures in East Germany"; West Berlin, Informationsbuero West, 1 Oct 62, p 6

An outbreak of foot-and-mouth disease in an agricultural producer cooperative (LPG) in the community of Kromsdorf, Kreis Weimar, has caused local veterinary-medical authorities to take drastic quarantine measures. The community has been closed to all visitors and even the residents may not leave Kromsdorf. Numerous communities in the Kreis, including the Weimar City district, have been designated as protective zones, as have another 15 communities in Kreis Apolda. Public meetings and visits by delegations are prohibited in protective zones. Volunteer harvesters may not enter stables or farms under any circumstances.

An outbreak of foot-and-mouth disease in the Magdeburg area on 30 September 1962 necessitated the transfer of a sports event to another area since several communities were closed off.

The disease broke out again in the Saalkreis area, and outlying districts of Halle City Kreis had to be declared protective zones.

Gerontology

46. Attempt to Increase Longevity by Variety of Means

"Man Will Live for a Long Time," by A. Kalashnikova, Candidate of Biological Sciences; Vil'nyus, Sovetskaya Litva, 26 Jul 62, p 2

In this article the author discusses various measures taken in the USSR to increase the longevity of the Soviet people. These measures fall into two broad categories: mother and infant care, and the improvement of living and working conditions.

In the USSR at present there are more than 14,000 maternity and pediatric consultation offices, more than 200,000 institutions for pregnant and confined women, and more than 5.5 million children in creches and kindergartens. In 1962, in Lithuania there are 27,000 children in preschool institutions. As a result of sanitation measures, the mortality rate of mothers and infants is only 1/14 the previous level. Also, in the USSR there is one doctor for every 340 people.

Many steps have been taken "...to prevent the premature aging of the human organism." The Soviet Union has the shortest working day; in the last 4 years, 50 million people have been resettled in comfortable homes; more than 400 new large cities and 1,100 city-type settlements have been erected; everywhere new parks and public gardens are created, and trees planted. Also designed to increase the longevity of the citizen are such steps as yearly paid vacations, participation in sports and gymnastics, and sojourns in rest homes and sanitariums.

In 1961 in Lithuania, five new institutions for the treatment and prevention of disease were constructed, and in 1962 four hospitals, 94 feldsher-midwife points, and 34 health centers in industrial enterprises are going into operation. In 1962, 56,000 rubles was earmarked for the development of physical culture and public health programs.

The average life expectancy in the USSR is currently 68 years. However, it is biologically possible for man to live 150-200 years. Soviet scientists and medical workers are working on the solution to this problem.

#### Immunology

#### 47. Book on Prophylaxis of Tuberculosis by Vaccination

"Protivotuberkuleznaya Vaktsinatsiya i Ey Primeneniye v USSR" (Antitubercular Vaccination and Its Application in the Ukrainian SSR), Kiev, Gosmedizdat, Ukrainian SSR, 1960; reviewed by M. Burlachenko (Kishinev); Kiev, Vrachebnoye Delo, No 7, Jul 62, p 154

The book is called an important manual which will be of great help to physicians and public health organizations engaged in work on the problems of the prophylaxis of tuberculosis in the Ukraine. It is the first attempt to present a total picture of the vast amount of experience gained in the application of the antituberculosis vaccine in the Ukrainian SSR and the USSR. The book provides statistics on the number of people in the Ukraine and USSR vaccinated with the BCG vaccine

(more than 43.5 million persons in the USSR received the vaccine between 1953 and 1959); it presents a picture of the experience gained in the struggle to control tuberculosis; and it discusses the scientific and organizational aspects of the prophylaxis of the disease.

#### 48. New Vaccines Discussed

"Against Infections"; Moscow, Vechernyaya Moskva,  
3 Jul 62, p 2

In this article Prof P. A. Vershilova director of the Institute of Epidemiology and Microbiology imeni Gamaleya, Academy of Medical Sciences USSR, discusses some of the more than 30 effective therapeutic and preventive preparations that the institute has developed over the years.

A new antituberculosis vaccine for children is now being prepared in large quantities. This subcutaneous vaccination has proved more effective than the earlier preparations, which had to be taken internally. Another vaccine has been developed for children, one that protects them from three diseases simultaneously: whooping cough, diphtheria, and tetanus. With this preparation, only three inoculations are necessary, instead of the previous nine.

A new chemical vaccine which protects against typhoid and paratyphoid has been developed. This vaccine is prepared from microbes which have been treated with various chemical substances to reduce their harmful effects.

"A group of scientists at the institute were the first to create a live brucellosis vaccine, which affords good protection from the infection after only a single injection."

The institute also developed a Staphylococcus toxoid which has wide application. "This new drug cures people of many purulent diseases particularly those which still often occur in miners. Curiously enough, the Staphylococcus toxoid is also efficacious against postnatal mastitis. However, this is not at all surprising, since the same Staphylococcus gives rise to this illness."

#### 49. Foot-and-Mouth Disease Vaccine-Producing Apparatus Pictured

Baku; Bakinskiy Rabochiy, 6 Jul 62, p 3

This photograph caption states: "The Azbiokombinat [Azerbaydzhan Biological Combine] in Khanlarskiy Rayon is producing vaccine against foot-and-mouth disease. In the photograph: workers of the combine, Nasib Yusibov and Galya Pyatifova, at a culturing apparatus."

50. Works of Tomsk Institute of Vaccines and Sera

Voprosy Epidemiologii, Mikrobiologii, i Immunologii (Tr. Tomskogo N.-I. In-ta Vaksin i Syvorotok, 13) (Problems of Epidemiology, Microbiology, and Immunology (Works of Tomsk Scientific Research Institute of Vaccines and Sera, No 13), Tomsk, Tomsk University, 1961, 396 pp, 1r. 90 k (from Referativnyy Zhurnal -- Biologiya, No 16, Aug 62, Abstract No 16B331K)

The following is a partial table of contents of Works of the Tomsk Scientific Research Institute of Vaccines and Sera, No 13, compiled from the abstract journal cited above. No abstracts are given for any of the items listed.

1. Further Research on the Epidemiology of Tick-Borne Encephalitis in the Tomsk Focus, by S. P. Karpov, A. R. Yav'ya, and A. G. Kolmakova, pp 31-35
2. The Clinical Picture and Diagnosis of the Acute Period of Tick-Borne Encephalitis According to Data From the Infectious Disease Clinic, by I. A. Minkevich, A. M. Tselishchev, F. S. Belova, and M. I. Postol'nik, pp 36-41
3. Microbiological Methods of Investigation in the Diagnosis of Diseases With Natural Foci, by S. P. Karpov, pp 42-50
4. The Content of Specific Antibodies in the Blood Serum and Spinal Fluid of Patients With a Progressive Course of Tick-Borne Encephalitis, by M. K. Tyushnyakova and V. S. Yerofeyev, pp 51-54
5. Observations on the Hemagglutination Inhibition Reaction in Tick-Borne Encephalitis, by S. P. Karpov, A. A. Selezneva, and Yu. V. Fedorov, pp 55-60
6. Data on the Indirect Hemagglutination Reaction in Tick-Borne Encephalitis, by S. P. Karpov, A. A. Selezneva, and Yu. V. Fedorov, pp 61-65
7. An Investigation on Modernization of the Method of Producing a Dry Vaccine Against Spring-Summer Tick-Borne Encephalitis, by L. D. Ovchinnikova, L. I. Novzorova, and L. M. Prilutskaya
8. Observations on the Reactogenicity of a 2.5% Brain Vaccine Against Tick-Borne Encephalitis, by L. M. Murina, pp 282-285

9. Electrophoretic Analysis of Different Steps in the Production of Gamma Globulin Against Tick-Borne Encephalitis, by M. M. Nemirovich-Danchenko, N. B. Plakhova, Yu. I. Gluchakova, pp 289-291

10. Principles of the Reactogenicity of Gamma Globulin Against Tick-Borne Encephalitis, by N. B. Plakhova, Yu. V. Fedorov, and V. G. Mekhanikova, pp 316-321

11. A History of the Study of Tick-Borne Typhus in Siberia and the Far East, by M. A. Mastenitsa, pp 325-329

Medical Electronics51. Instruments for Study of Higher Nervous Functions

"Radioreflexometer"; Moscow, Meditsinskiy Rabotnik, Vol 25,  
No 72, 7 Sep 62, p 1

The medical industry of the USSR is now manufacturing a universal radioeflexometer RRM-59. With the help of this instrument, it will be possible to study the higher nervous functions of man and animals and to carry out investigations in the fields of physiology and psychology. The instrument is intended for the investigation of conditioned and unconditioned reflexes developed as a result of the application of contact, distant, and word stimulants. It will be used in physiological and psychiatric laboratories, psychiatric and neurological clinics, and laboratories of sport medicine. With the help of the radioreflexometer it will be possible to study the rapidity of different processes of thinking; the speed with which foreign words are translated and arithmetical problems solved; to determine the height of a note of a musical instrument and so forth. The new instrument is noiseless and will make it possible to determine not only the latent but also the open period of reactions. The instrument is portable, compact, and easy to operate. Its basic elements are a time measuring device, a generator with a quartz frequency stabilizer, and a commutator.

52. New Electroencephalograph and Cardiocyclograph

"Two Instruments"; Moscow, Meditsinskiy Rabotnik, Vol 25,  
No 72, 11 Sep 62, p 1

First models of two new medical instruments are being assembled at the experimental plant of the designing bureau of "Biofizpribor" in Leningrad. One of these is a 16-channel highly sensitive instrument for use at neurological, neurosurgical, and psychiatric clinics, for fine topical diagnostics of cerebral affections. With the help of this instrument, it will be possible to determine cerebral pathological foci and the localization of tumors. Investigations of the bioelectrical potentials will be carried out by intensifying the biocurrents; the results will be recorded on paper tape with an ink-writing device. The instrument will be operated by alternating currents of 127 and 220 volts. The electroencephalograph will consist of a transformer for recording respiration, a device for recording the cutaneous-galvanic reflex, and different devices for the operation of the instrument.

The second instrument is a cardiocyclograph, a device for the recording of cardiac biocurrents. It is an electronic instrument which will be used for the diagnosis of cardiovascular diseases and the study of cardiac physiology. The recording will be made on photo paper 100 millimeters wide. Its weight will be 60 kilograms.

53. New Apparatus for Instantaneous Examination of Heart Function

"Universal Apparatus for Investigating the Phase Function of the Heart," by A. N. Medelyanovskiy and O. I. Kiselev, Chair of Pathologic Physiology, First Medical Institute imeni I. M. Sechenov, Moscow; Moscow, Fiziologicheskiy Zhurnal SSSR imeni I. M. Sechenova, Vol 48, No 9, Sep 62, pp 1, 126-129

A description of a universal apparatus for phase investigation of the heart by tapping biocurrents of the heart is presented. Use of this apparatus, the UAFIS-1 (Universal'nyy Apparat Dlya Fazovogo Issledovaniya Serdtsa), is recommended in cases where a more precise method of synchronizing either diagnostic or therapeutic procedures with phase dynamics of the heart is desired.

A block-diagram of the interconnection and commutation of the 9-block UAFIS-1 and the main circuitry of the apparatus are shown.

54. New Method of Investigating Arterial Tonus

"Pneumoelectrooscillographic Method of Investigating the Tonus of Large and Medium Caliber Arteries," by O. Ya. Grinshpun, Vinnitsa; Moscow, Fiziologicheskiy Zhurnal SSSR imeni I. M. Sechenova, Vol 48, No 9, Sep 62, pp 1, 121-1, 125

A pneumoelectrooscillographic method of quantitatively evaluating the tonus of large and medium caliber arteries is discussed. This evaluation is based on high-speed pulse curve recording. Results of various tests together with pneumoelectrooscillographic readings can reveal the functional conditions of muscular elements of artery walls and their reaction to specific irritants. Repeated pneumoelectrooscillographic investigations may supply the necessary information concerning the effectiveness of the treatment prescribed in a given case. Pneumoelectrooscillography may be utilized to aid the early diagnosis of a number of cardiovascular diseases, such as neurocirculatory dystonia, hypertension, endarteritis obliterans, and atherosclerosis.

Schematic diagrams of a pneumoelectrooscillogram are presented.

55. New Device for Measuring Rate of Blood Flow

"An Instrument for Measuring Blood Flow Velocity With the Aid of Semiconductorized Transducers," by O. Ye. Guseyev and B. I. Tkachenko, Laboratory of General Physiology imeni Academician K. M. Bykov, Institute of Experimental Medicine, Academy of Medical Sciences USSR, Leningrad; Moscow, Fiziologicheskiy Zhurnal SSSR imeni I. M. Sechenova, Vol 48, No 9, Sep 62, pp 1,120-1,121

A new instrument for recording blood flow velocity is described. It is of simple design, is easy to operate, and has adequate sensitivity. It can be used with any MP0-2 tupe galvanometer. It consists of a semiconductor transducer inserted into the needle of a "Rekord" type syringe. Two identical channels in the instrument make it possible to record the speed of blood flow in two different blood vessels simultaneously.

A schematic diagram of the wiring of the instrument is presented.

56. Ukrainian SSR Demonstrates New Microscope

"Microscope With Gas Microchamber," by Ya. Chmel'; Moscow, Meditinskiy Rabotnik, 21 Sep 62, p 1

"At the Exhibition of Advanced Experience and the Achievements of the National Economy of the Ukrainian SSR, a new microscope of the Ye MV-100 type, a product of the Suma factory of electron microscopes, was demonstrated. In contrast to existing microscopes, this one has an objective with a gas microchamber. The microscope is capable of enlarging from 30,000 to 300,000 times. With its aid it is possible to carry on biological, medical, and chemical research, and to observe the process of development of microorganisms, viruses."

57. Instrument to Record Bioelectric Activity of Muscles

"An Instrument for Measuring the Bioelectric Activity of Muscles," by S. R. Gutman and V. A. Kremnev, Academic Group of Active Member of the Academy of Medical Sciences USSR G. N. Speranskiy, and of the Moscow Orthopedic Hospital; Moscow, Byulleten' Eksperimental'noy Biologii i Meditsiny, Vol 54, No 8, Aug 62, pp 114-116

The authors describe in this article an electronic instrument, the CA-1, used to measuring the bioelectric activity of muscles. Biopotentials are picked up by the instrument and amplitudes of all impulses are added by the principle of integration of positive increments of the myogram curve. An ink recorder or a counter are used in recording.



This instrument was tested in the physiology laboratory of the Moscow Orthopedic Hospital.

Schematic diagrams and a sample curve of bioelectric activity of muscles are presented.

#### 58. Electrical Resistance of Skin and Organs of Corpses

"Some Information on the Change of Electrical Resistance of the Skin of Corpses," by K. L. Nazaretyan and G. V. Vartanyan, Sb. tr. Byuro gl. sudebno-med. ekspertizy i Kafedry sudebn. med. Yerevansk. med. in-ta (Collection of Works of the Bureau of the Main Forensic Medical Expertise and the Chair of Forensic Medicine. Yerevan Medical Institute), No 3, 1961, pp 103-108 (from Referativnyy Zhurnal -- Avtomatika i Radioelektronika, No 7, Jul 62, p 7-5-30)

"Apparatuses for measuring the over-all electrical resistance of skin are described. Two of these are designed with electron tubes and two others with semiconductor triodes. One apparatus is in the form of an ohmmeter and the other three are measuring bridges. The electronic ohmmeter operates at a high frequency which is produced by means of an RC oscillator. A 100 microamp microammeter graduated in ohms is used as the measuring instrument. The semiconductor instrument consists of a measuring bridge with a scale graduated in ohms, a two-stage oscillator, and a three-stage amplifier. The resistance of internal organs is measured by means of fixed needle-shaped electrodes, while flat electrodes are used to measure resistance of the skin and blood. Results of measurements are given. Immediately after death and the destruction of the central nervous system, resistance drops; then, for a period of 3 hours, resistance increases and again decreases exponentially. Resistance of the skin of a corpse is 100 times less than that of a living human. The proposed method may find application in determining the time of death."

#### 59. Surgical Instrument Using HF Current for Skin Coagulation

"Instrument With Replaceable Electrodes for Bipolar Coagulation and Removal of Neoplasm," by V. S. Bul'ba-Popkov, L. Ye. Diminshteyn, and I. V. Golubeva, USSR Patent, Class 21 g, 23/02, No 138672, 8.06.61 (from Referativnyy Zhurnal -- Avtomatika i Radioelektronika, No 7, Jul 62, p 7-5-26)

"The authors propose an instrument for bipolar coagulation and removal of neoplasm which consists of forceps, electrodes, and leads and power supply. In order to increase the effect of treating diseases of the brain by means of skin coagulation by high frequency current and to increase the

possibility of furthering the use of bioactive instruments in other branches of surgery as well, the electrode holder is made in the form of easily separable forceps consisting of two branches and including a supply of interchangeable electrodes of different configuration and different shape of the active area."

60. Polish Mechanical Heart

"Artificial Heart in Poznan; Success of Polish Science and Technology"; Prague, Veda a Technika Mladezi, No 16, 10 Aug 62, pp 548-549

The article provides a brief description of the mechanical heart designed by Prof Jan Moll of Poznan, and reviews the principles involved in its operation. The instrument consists of three main components: two pumps and a heat exchanger.

61. Czechoslovak Electrical Recording Devices in Medicine and Biology

"Electrical Recorders in Medical and Biological Research," by Engr L. Hromadka of the "Chirana" Enterprise in Prague and Z. Winter of the "Prema" Enterprise in Brno; Prague, Jemna Mechanika a Optika, No 9, Sep 62, pp 281-287

Pointing out that the Eighth Commission of the CEMA (Council for Mutual Economic Assistance) has designated Czechoslovakia as the nation responsible for the coordination of development and production of recording devices in general, the article discusses the principles involved in various recording instruments used in medicine and in biological research, gives examples of such uses, and points out some of the features of various Czechoslovak models. Several photographs of recording instruments are included. (FOR OFFICIAL USE ONLY) (COPYRIGHT by the State Publishing House for Technical Literature, Prague, 1962)

Nuclear Medicine

62. Yugoslav Federal Commission for Nuclear Energy Meets

"Expansion of Application of Isotopes in Industry and Medicine," datelined Belgrade, 4 Oct 62, Tanjug dispatch; Zagreb, Vjesnik, 4 Oct 62, p 4

Under the chairmanship of Avdo Humo, member of the Federal Executive Council and President of the Federal Commission for Nuclear Energy, a meeting of the commission was held in Belgrade to examine in detail the draft of the work plan for 1963 and a series of problems on the realization of the proposed plan of development of nuclear energy.

# C-O-N-F-I-D-E-N-T-I-A-L

The work plan for 1963 provides for continuation of the research already begun in the fields of physics, chemistry, and radiobiology. These projects will be accomplished by using the existing capacities of the nuclear institutes and the cyclotron in the "Rudjer Boskovic" Institute in Zagreb.

In the field of nuclear raw materials, further regional and detailed prospecting is foreseen for 1963. There will also be further mining and geological operations in the deposits in Slovenia, Macedonia, and Serbia to determine the available quantities and the quality of ore and the possibilities for economically exploiting it.

In the field of nuclear raw materials technology, research will continue on technological processes for obtaining nuclear raw materials, uranium, graphite for use in reactors, and other materials.

At the end of 1962, an installation for the production of uranium concentrates will be put into operation in the Balkans.

Production of radioisotopes using the reactor in Vinca and the cyclotron in Zagreb will be oriented toward those types which answer domestic needs. Further expansion of the application of isotopes in the operations of some industrial branches and in hydrological research is planned.

As regards application of isotopes in medicine, it is planned to build a telecobalt installation in Titograd, using mechanical parts to be produced domestically. Further expansion in the use of isotopes in diagnosis and therapy in health establishments is foreseen.

[The article mentions plans for expending United Nations special funds in 1963 agricultural projects using isotopes, and notes expenditures of 1962 special funds for nuclear research.]

In addition to organizational problems in the institutes, the agenda included the problem of cooperation with other countries in using nuclear energy for peaceful purposes.

At the meeting, in addition to a detailed study of the role and responsibilities of the Professional Council, a new Professional Council of the Federal Commission for Nuclear Energy was named. The council, consisting of 13 members, was elected as follows:

President of the Professional Council: Dr Anton Moljk, full professor of the University of Ljubljana and scientific associate of the "Jozef Stefan" Institute in Ljubljana;

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Secretary: Engr Predrag Anastasijevic, higher scientific associate of the "Boris Kidric" Institute for Nuclear Science in Vinca;

Members:

Dr Niksa Allegretti, scientific associate of the "Rudjer Boskovic" Institute in Zagreb and associate professor of the University of Zagreb;

Engr Bela Bunji, director of the sector for nuclear raw materials technology of the Establishment for Nuclear Raw Materials (Zavod za nuklearne sirovine) in Belgrade;

Dr Vladimir Knap, scientific associate of the "Rudjer Boskovic" Institute in Zagreb;

Dr Ivan Draganic, scientific associate of the "Boris Kidric" Institute in Vinca;

Engr Teodor Gregoric, associate professor of the University of Sarajevo;

Dr Slobodan Jankovic, associate professor of the Mining and Geology Faculty in Belgrade;

Dr Zlatko Jankovic, full professor of the University of Zagreb;

Dr Milan Osredkar, higher scientific associate of the "Jozef Stefan" Institute in Ljubljana;

Engr Zlatko Plenkovic, director of the electrotechnical institute of the "Rade Koncar" Factory in Zagreb'

Dr Engr Nenad Rasic, scientific associate of the "Boris Kidric" Institute in Vinca; and

Dr Milenko Susic, scientific associate of the "Boris Kidric" Institute in Vinca.

63. Cobalt Cannon Developed in East Germany

"First Cobalt Cannon"; Berlin, Neues Deutschland, 3 Oct 62,  
p 3

The GDR's first cobalt cannon was produced by the Scientific-Technical Center for Radiological Technology and Medical Electronics in Dresden. The installation, which is used for the treatment of tumors, was developed by a team of staff members of the center, the Development

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Section for X-Rays of the Transformer and X-Ray Plant in Dresden, and the Hoernig Design Office in Dresden. The radiation head, containing radioactive cobalt with an intensity of 2,000 Curies, weighs 1.5 tons and rotates around the patient. The first installation for medical tests will soon be set up in the Radiological Clinic of Karl-Marx-Stadt University.

Oncology64. Combined Method of Therapy of Lung Cancer

"First Experience of the Combined Treatment of Cancer of the Lungs," by Prof A. N. Novikov, Doctor of Medical Sciences N. D. Garin, and Candidates of Medical Sciences Z. V. Gol'bert, M. A. Volkova, Ye. S. Kiseleva, T. N. Matveyeva, and A. D. Vavkin, State Scientific-Research Oncological Institute imeni P. A. Gertsen, Ministry of Health RSFSR; Moscow, Khirurgiya, Vol 38, No 8, Aug 62, pp 22-28

Of all cancer affections, pulmonary cancer is now in the third place, while only 10 years ago it was in seventh or eighth place. This continuous rise in the incidence of lung tumors has placed this problem in the forefront of the struggle for the control of cancer. Observations established that surgery, irradiation, and chemotherapy independently applied are inadequately effective in the therapy of the disease. The experimental combined application of the three methods provided data which indicate the immediate effectiveness of this method of treatment of lung cancer. Further observations, however, are necessary in order to determine the remote results of such therapy.

65. Substances Exhibiting Antitumor Action

"On the Problem of the Search for Substances Possessing Antitumor Properties," by G. Ye. Arkad'yeva and N. V. Duganova, Tr. Leningr. Khim-Farmatsevt. In-ta (Works of the Leningrad Chemicopharmaceutical Institute, 1961, No 13, pp 150-155 (from Referativnyy Zhurnal-Biologiya, No 15, Aug 62, Abstract No 15 R166, by Syrkina-Kruglyak)

"The antitumorous properties of 30 strains of penicillin and aspergillin, 36 yeast-like fungi of the Candida genus, the cultural media of these fungi, and 8 chemical compounds (polophyllin and its derivatives) were investigated in experiments conducted in vitro by determining the dehydrogenase activity (Miyamura-Pavlenko) of the tumorous cells of Ehrlich's ascitic carcinoma. Fungi were planted on the Chapak solid medium or on agar-wort in a test tube (the Konkorkina rod method, 1957). A week later, agar discs 2 millimeters thick, taken from different sections, were placed in Petri dishes with a nutritive medium and ascitic fluid diluted with Tyrode's solution to a concentration of 20 million tumorous cells in one milliliter. Activity was determined by the diameter of the blue zone of nonreduced methylene blue. The activity of most of the strains of penicillin, with eight of them more pronounced, and of four yeast-like fungi was determined. The products of the vital activities of the mentioned microorganisms were studied also microscopically in vivo (vol'fson and others, 1958). No parallelism in the

results obtained in both methods was noted: suppression of dehydrogenase activity in most cases was not accompanied by the paranecrosis of the tumorous cells."

#### 66. Snake Venom As an Immunizing Agent Against Tumors

"Effect of Snake Venom on Malignant Tumors," by Yu. N. Fat'kin;  
Alma-Ata, Vestnik Akademii Nauk Kazakhskoy SSR, Vol 18, No 5,  
May 62, pp 84-85

Results of the experimental application of snake venom obtained from *Ancistrudon halus caraganus* in order to determine the effect of the venom on Brown-Pearce tumors are reported in the article. Rabbits 2.0 to 2.5 kilograms in weight were used in the experiments which established that a one percent solution of the dry venom applied in vitro to Brown-Pearce carcinoma at temperatures of plus 3 to minus 5 for periods of 24-25 hours produced changes in the biological properties of the tumorous cells; the changes take place at a slow rate, finally causing the complete resolution of the tumors. Following the resolution of the tumor, the rabbits acquired a stable immunity against transplants of Brown-Pearce tumors. Further studies of the effect of snake venom on tumors are urged.

### Pharmacologicals and Biologicals

#### 67. Psychopharmacological Preparations

"Modern Psychotropic Drugs and Their Application," by Prof. I. A. Polishchuk, Psychiatric Clinic, Kiev Institute for the Advanced Training of Physicians; Kiev, Vrachebnoye Delo, Vol 44, No 8, Jul 62, pp 9-15

The practical application of chlorpromazine and reserpine in the therapy of psychoses radically changed the methods of treating psychotic patients, as well as the problems with regard to the origin and manifestations of such diseases. The number of drugs used in the therapy of psychoses is continually increasing. In the main, these preparations may be divided into the following groups:

1. Neuroleptic drugs primarily represented by the phenothiazine preparations;
2. Tranquilizers which, although not antipsychotics, exhibit a pronounced sedative effect. These may be divided into two groups: preparations of central action represented primarily by meprobamate and andaxin; preparations which regulate the automatic functions and are represented by benzacine and amisyl;

3. Antidepressants or thymoleptics: drugs which improve the well-being of the patients and stimulate their mental processes and are represented by tofranyl and iprazid;

4. Drugs which stimulate the central nervous system. Such as preparations of the phenamine and ritalin types;

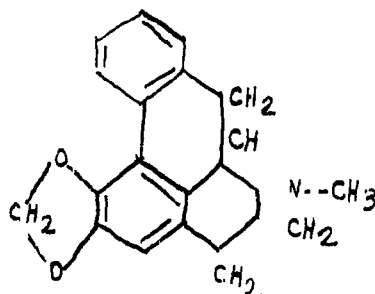
5. Preparations of the eserine and proserine groups which restore the functions of the central nervous system.

On the basis of their action, all of the psychotropic drugs are either sedatives or stimulants.

#### 68. Effect of Remerine on Central Nervous System

"Concerning the Pharmacology of the Alkaloid Remerine and Its Derivatives," by Aspirant S. F. Fakhrutdinov, Laboratory of Pharmacology and Chemotherapy, Institute of the Chemistry of Plant Substances, Academy of Sciences Uzbek SSR; Tashkent, Meditinskiy Zhurnal Uzbekistane, No 5, May 62, pp 58-61

White mice were used in the experiments which were carried out in order to determine the pharmacology and toxicity of remerine, an alkaloid obtained from *Roemeria refracta*. Experiments established that remerine belongs to the apomorphine group of preparations. Its structural formula is as follows:



The LD<sub>50</sub> for the hydrochloride of remerine is 79.5 milligrams per kilogram body weight. With the conversion of remerine into a quaternary base, its toxicity is modified: thus, for instance, the toxicity of the oxymethylate of remerine, for mice, is 48.5 milligrams per kilogram body weight; oxyethylate of remerine -- 71 milligrams per kilogram body weight; oxy-n-propylate -- 114 milligrams per kilogram body weight; oxy-n-butylate -- 93 milligrams per kilogram body weight; and nitromethylate -- 77.5 milligrams per kilogram body weight. The difference in the toxicity of remerine derivatives may be explained by the presence of different radicals.



In large doses, remerine hydrochloride stimulates the central nervous system inducing spasms in all types of animals. The spasms induced by the alkaloid may be alleviated or completely removed by liminal or chloral hydrate. Remerine derivatives, in which the trivalent N is replaced by a tetravalent N, acquire curare-like and ganglioblocking properties.

#### 69. Ridol -- a Spasmolytic Preparation

"Investigation of the Spasmolytic Action of Ridol," by Frigyes Gotz and Jozsef Kincses, Orv. Helylap. (Hungary), 1961, 102, No 35, pp 1661-1662 (from Referativnyy Zhurnal -- Biologiya, No 15, Aug 62, Abstract No 15 T155, by A. Ivanov)

"One tablet or ampoule of ridol (I; a new Hungarian spasmolytic preparation), containing 80 milligrams of dimethylaminoacetyl phenothiazine, 1.5 grams of methyl homatropine, 20 milligrams of codeine, and 150 milligrams of novamidazophen, was found to be highly effective when used for the relief of renal colic (an attack was arrested by the administration of two tablets of ridol to 59 to 125 patients; the intravenous administration of algopyrene was necessary for the relief of the other 66 patients). Of nine patients who received two tablets three times per day in order to prevent the recurrence of the attack, only one suffered another onset of the colic. "I was found to be effective also when administered to patients suffering from tenesmus of the urinary bladder. I was successfully applied in retrograde pyelography. The administration of I frequently induces side effects (dizziness, dryness in the mouth, tachicardia which disappear within 10 to 15 minutes."

#### 70. Pharmacological Preparations Found to Affect Speed of Heart Muscle Regeneration

"Original Experiments"; Minsk, Sovetskaya Belorussiya, No 173 (9487), 25 Jul 62, p 4

Prof N. P. Sinitsyn, working in the pharmacology laboratory of Gor'kiy Medical Institute, has discovered that certain pharmacological preparations can be used to accelerate or retard the process of regeneration of heart muscles. However, he warns that it is still too early for the results of his experiments to be used in medical practice.

In earlier experiments on animals, Professor Sinitsyn had proved his hypothesis about the "high plastic abilities of heart muscle." In these early experiments, which have been conducted on more than 200 dogs, the following procedure was used: small sections of the wall of the heart muscle and ventricle were removed and replaced by flaps of skin, muscle, capron, and even cloth. In time, the heart muscle regenerated.

The same results were obtained in animals in whom infarcts were created prior to the operations. The affected tissue was removed and replaced by the above-named substitutes, and the myocardium regenerated.

It was at this point in his experiments that Professor Sinitsyn began to study the effect of various pharmacological preparations on the process of restoration of the heart muscle, and he finally arrived at the right combination of preparations necessary to accelerate or retard the growth process.

#### 71. Giparez in Therapy of Hypertension

"Giparez," by N. Kipshidze, Director of the Institute of Experimental and Clinical Therapy, Tbilisi; Moscow, Meditsinskiy Rabotnik, Vol 25, No 76, 21 Sep 62, p 3

Giparez, a preparation containing 25 milligrams of hypothiazine, 25 milligrams of apressin, 0.1 milligram of reserpine, and 300 milligrams of potassium chloride, was administered to 60 patients suffering from different degrees of hypertension. In all cases, the results were positive: arterial pressure was restored to normal and the well-being of the patients considerably improved. No side reactions as a result of the administration of giparez were noted.

#### 72. New Work on Pharmacology

"Rukovodstvo po Farmakologii" (Manual on Pharmacology), Medgiz, 1961, Vol I and II. Editorial College: S. V. Anichkov, S. D. Zaugol'nikov, V. M. Karasik, N. V. Lazarev (editor in chief), M. D. Mashkovskiy, M. Ya. Mikhel'son, M. M. Nikolayev, and G. N. Pershin; Reviewed by Prof R. K. Aliyev Docents G. S. Abiyev, G. B. Allakhverdibekov, B. A. Shekhtman, and I. G. Samedov, and Candidate of Medical Sciences R. O. Amirov; Moscow, Farmakologiya i Toksikologiya, Vol 25, No 4, Jul Aug 62, pp 498-499

"The "Manual on Pharmacology" is the first and long needed work which embraces the vast amount of material bearing on the more important problems of theoretical and practical pharmacology. The two volumes consist of six chapters which cover 68 titles. Each volume is provided with a subject index. The work is well written and contains many illustrations. There are some shortcomings. Taking into consideration, however, the vast scope of the material covered, the work will be greeted as one which fills an urgent need. It is regrettable that the number of copies printed, about 10,00 in all, is relatively small. It is hoped that when the next edition is published the number of copies printed will considerably greater."

73. Tarin -- a New Preparation

"Tarin (Nibufin), A New Myotic Preparation for the Therapy of Glaucoma," by G. Ya. Chernyavskiy, "Materialy 2-Vses. Konferentsii Oftal'mologov, 1961. Tbilisi, Resbp. Nauchn. O-va Oftal'mologov Gruz. SSR ("Data on the Second All-Union Conference of Ophthalmologists, 1961. Tbilisi, Republican Scientific Association of Ophthalmologists, Georgian SSR), 1961, pp 105-106 (from Referativnyy Zhurnal-Biologiya, No 15, Aug 62, Abstract No 15 T114)

"Thirty-five patients suffering from glaucoma in different stages and with various degrees of compensation were treated with tarin (I; p-nitrophenolic ester of dibutylphosphinic acid). Tarin in the form of an aqueous solution (1:3000) in doses of 3-5 drops per day was administered to the patients. I depressed cholinesterase with an action which was equal to that of armine but less active than that of eserine, proserine, and phosphacol. I was found to be less toxic than the above-mentioned preparations. The daily fluctuations of intraputical pressure did not change under the influence of tarin. In some cases, the curve was somewhat decreased, failing to reach normal pressure. A myotic effect was noted in all of the patients. An increased ophthalmotonus was noted in three of the patients, although the amplitude of the curve remained within the normal limits. The hypotensive effect of I was noted for most part in patients with an initial subcompensatory form of glaucoma. The hypotensive effect of I was found to be somewhat weaker than that of phosphacol, phosarbine, and armine."

74. Determination of Purity of Commercial Vitamin D<sub>2</sub>

"Investigation of the Commercial Preparations of Vitamin D<sub>2</sub> by the Chromatographic Method," by V. A. Devyatnin and I. A. Solunina, Tr. Vses. N.-I Vitamin In-t (Works of the All-Union Scientific-Research Vitamin Institute), 1961, 7, pp 107-112 (From Referativnyy Zhurnal-Khimiya, No 16, 25 Aug 62, Abstract No 16 L155, by A. Vavilova)

"The chromatographic method of separating vitamin D<sub>2</sub> (I) and its photoderivatives, intermediary products produced together with I in the process of the irradiation of ergosterine in alcohol or oil, is described. The data which were obtained indicate that the concentrates of I produced by our vitamin plants contain 30 to 40 percent admixtures, biologically, inactive products of the irradiation of ergosterine. These and other data obtained in previously conducted analyses bear out the fact that our vitamin producing plants do not have reliable methods for the determination of the purity of D<sub>2</sub>. Bibliography -- 18 titles."

75. Medicinal Preparation Obtained From Bees' Milk

"Precious Milk"; Moscow, Trud, No 177 (12653), 29 Jul 62, p 4

"There recently appeared a new medicinal preparation, 'apilac,' which cures many diseases. Uterine milk produced by bees serves as the raw material for it.

"Last year, in the country, several kilograms of this valuable medicinal raw material were obtained. In Bashkiriya, 800 grams were extracted. Now the republic has a factory to prepare 80 kilograms of bees' milk...."

76. USSR Discovers Way to Make Technical Grade Morphine From Indigenous Raw Materials

"Preparations From Technical Grade Morphine"; Moscow, Meditsinskiy Rabotnik, 21 Sep 62, p 1

"Technical grade morphine was extracted from oleiferous poppy heads by a factory method for the first time in the country at the Chinkent chemicopharmaceutical factory imeni Dzerzhinski. Before this, it had been extracted from opium that was obtained abroad.

"The industrial chemists, under the guidance of Engr I. Mukhorkin, successfully utilized a new technique which was based on the processing of raw materials available in the USSR. The output of technical grade morphine is growing. It is destined for the production of a number of synthetic preparations such as apomorphine, dionine, morphine hydrochloride, codeine, and others."

77. Fungicidal Properties of Clematis

"Fungicidal Properties of Plants of the Ranunculaceae Family," by N. I. Petrushova and N. B. Meshchaninova, Tr. Gos. Nikitsk. Botan. Sada (Works of the State Nikitskiy Botanical Garden), No 33, 1960, pp 247-252 (from Referativnyy Zhurnal -- Biologiya, No 16, Aug 62, Abstract No 16G571)

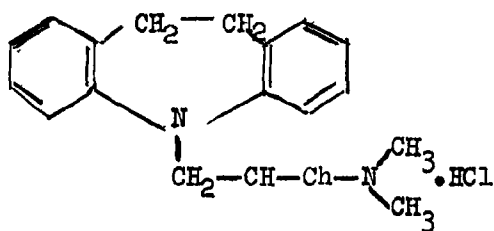
"Of 15 species of plants of the family Ranunculaceae, 5 species of the genus Clematis were found to have high fungicidal properties, suppressing the growth of one saprophytic (*Saprolegnia* sp.) and 9 pathogenic fungi (*Ascochyta pisi*, *Aspergillus niger*, *Helminthosporium cynodontis*, *Monilia cinerea*, *Phoma punicea*, *Phomopsis cinerescens*, *Pythium intermedium*, *Rhizoctonia solani*, and *Trichothecium roseum*). The death of *M. cinerea* and *R. intermedium* under the effects of volatile frantions

-- juice of *C. flammula* -- occurs after 3- and 2-minute exposure, respectively. When tested under natural conditions, a preparation from *C. flammula* caused the death of *Ph. cinereus* and *Ph. punicea pyknozoa*."

78. Melipramin: New Hungarian Antidepressant

"Melipramin (Imipramin)" by Dr Gyorgy Vukmirovits; Budapest, Orvosi Hetilap, Vol 103, No 33, 19 Aug 62, pp 1564-1565

Melipramin (Imipramin) is used for the treatment of depression and is produced by the United Pharmaceutical and Nutriment Factory (Egyesult Gyogyszer es Tapszergyar) of Budapest. Structurally, Melipramin is:



Chemically, the drug is N-(gamma-dimethylaminopropyl)-iminodibenzyl. The I. V. LD<sub>50</sub> dose to mice, rats, and rabbits is 18-35 mg/kg; when administered orally to rats, it is 625 mg/kg.

The drug has the following side effects: dryness of the mouth, sweating, weakness, vertigo, moderate drop in blood pressure, mild tachycardia, palpitations, headache, slight tremors, constipation, insomnia, eosinophilia, and drop in serum protein level; in isolated cases, it causes photosensitivity, urticaria, itching, urine retention, locomotive disturbances, generalized tremors, grand mal, visceral and peripheral parasthesia, and general state of excitement. These effects usually disappear of their own accord or when the dosage is readjusted.

Physiology79. Effect of Dimethylethanolamine on Frog Heart

"Reaction of an Isolated Heart and Vessels of a Frog to the Administration of Dimethylethanolamine," by Ye. I. Ayrapetyan and A. A. Akopyan, Tr. Yerevansk. Zootechn.-Vet. Inst. (Works of the Yerevan Zootechnical-Veterinary Institute), 1960, No 24, pp 251-258 (from Referativnyy Zhurnal -- Biologiya, No 15, Aug 62, Abstract No 15 Aug 62, Abstract No 15 T296, by Al Astrakhantsev)

"In experiments on an isolated frog's hear, dimethylethanolomine (I) in dilution of 1: 1000 exhibited a brief transitory, positive at first and then negative, inotropic action. I, better than atropine, restored and strengthened the work of the frog's heart the action of which was stopped by carbocholine in dilution of 1:1,000,000, but had no effect on the frog's heart the action of which was stopped by papaverine(1:100,000). I, when perfused in conjunction with barium chloride (1:5,000), prolonged diastolic action. The action of a frog's heart stopped by KCl (1:1,500) was restored sooner by I than by washing. In a mixture with KCl, I exhibited a positive effect on the frog's heart if the concentration of KCl did not exceed 1:2,000. I, in dilution of 1:5,000, somewhat constricted the isolated vessels of the frog; it constricted them by 17 to 30 times, following their dilation by sodium nitrite (1:1,000) and prevented the vessel constricting action of ephedrine (1:25,000 and 1:5,000) when administered in conjunction with the latter. Apparently colamine is active in the organism also after methylation."

80. Effect of Cervical Sympathetic Nerve on Auditory Function of Cochlea

"On the Role of Sympathetic Innervation in the Function of the Peripheral Branch of the Auditory Analysor," by Candidate of Medical Sciences A. I. Vasil'yev, Chair of Otolaryngology, Military Medical Order of Lenin Academy imeni; Kiev, Zhurnal Ushnykh, Nosovykh, i Gorlovykh Bolezney, No 4, Jul/Aug 62, pp 9-12

This report describes experiments conducted on ten cats to observe the change that stimulation of the cervical sympathetic nerve produces in the auditory potential of the cochlea. An electric

current was used to create the necessary stimulation. The results obtained showed that the cervical sympathetic nerve affects the functional capacity of the peripheral end of the auditory analyzer. Muscles of the tympanic cavity are not involved in the mechanism of this phenomenon. This is substantiated by the fact that their exclusion had no effect on the outcome of the experiments.

81. Retardation of Restoration of Disrupted Functions During Damage to Sympathetic Pathways and Conducting Systems of Spinal Cord

"Role of the Sympathetic Nervous System in the Process of Function Compensation," by T. G. Urgandzhyan, Institute of Physiology imeni Academician L. A. Orbeli, Academy of Sciences Armenian SSR, Yerevan; Moscow, Fiziologicheskiy Zhurnal SSSR imeni I. M. Sechenova, Vol 48, No 9, Sep 62, pp 1,064-1,070

Sympathectomy of abdominal sympathetic ganglia in dogs hampers the development of compensatory reorganization of coordinated connections in their organism. Bilateral extirpation of abdominal sympathetic pathways in dogs, which deprives them of the cerebral cortex, results in profound function disturbance. Restoration of disrupted functions occur very slowly and gradually. The electrodefensive conditioned reflexes developed earlier are restored, and new ones can be developed in dogs after both momentary ventrodorsal hemisection of the spinal cord and after sympathectomy.

These observations were made on the basis of the results of many experiments conducted on 40 dogs and puppies.

82. Bioelectric Activity Potential Accompanying Formation of Conditioned Defense Reflex in Rabbits

"Investigation of Correlation of Cortical Potentials in a Rabbit During the Development of Defense Conditioned Reflex," by Ye. V. Glivenko, T. A. Korol'kova, and G. D. Kuznetsova, Institute of Higher Nervous Activity Neurophysiology, Academy of Sciences USSR, and Institute of Electronic Controlling Machines, Moscow; Moscow, Fiziologicheskiy Zhurnal SSSR imeni I. M. Sechenova, Vol 48, No 9, Sep 62, pp 1026-1033

The authors discuss the results of their visual observation of the degree of resemblance of biopotentials on an electroencephaloscopic picture during the development of a conditioned reflex in each

of seven rabbits used in the study. Together with mathematical processing, the electroencephaloscopic method afforded a quantitative evaluation of the extent of synchronization of bioelectric activity in the cortex of each rabbit during the period when a conditioned defense reflex is being developed.

83. Physiology of Higher Nervous System

"The Contemporary State of the Physiology of the Higher Nervous Functions," by P. V. Simonov; Voyenn-Med. Zh. (Military-Medical Journal), 1962, 1, pp 16-22 (from Meditsinskiy Referativnyy Zhurnal, Section 9, No 9, Sep 62, Abstract No 2278)

No abstract was given.

84. Phasic Changes in Polarization Potentials of Cerebral Hemispheres of White Mice Discussed

"Polarization Brain Potential During Dying," by O. P. Minut-Sorokhtina, G. N. Sorokhtin, and Yu. B. Temper, Chair of Physiology of the Medical Institute, Khabarovsk; Leningrad, Fiziologicheskiy Zhurnal SSSR imeni I. M. Sechenova, Vol 48, No 8, Aug 62, pp 893-898

The authors of this report state that results of their experiments on white mice showed that the transition from life to death leads to a change in the polarization of potentials in the cerebral hemispheres. It was noted that hyperpolarization develops sharply during the first phase and passes over just as sharply to thesecond, or depolarization, phase. These terminal phases are stereotypes and develop independently from the causes of death. The authors believe that the terminal phase of hyperpolarization is the prodromal phase of terminal depolarization, which passes over into necrosis.



85. Bioelectrical Activity of Reticular Formation and Cerebral Cortex in Dogs

"Effects of Fasting and Satiety on the Bioelectrical Activity of the Reticular Formation and the Cerebral Cortex," by A. M. Marits, Laboratory of Animal Physiology and Biochemistry, Institute of Zoology, Academy of Sciences Moldavian SSR, Kishinev; Leningrad, Fiziologicheskiy Zhurnal SSSR imeni I. M. Sechenova, Vol 48, No 8, Aug 62, pp 889-892

The bioelectrical activity of the rostral part of the reticular formation and of the cerebral cortex in hungry dogs differs from the bioelectrical activity that takes place after satiety. The bioelectric activity of the reticular formation and of the cerebral cortex during relative hunger (during a 24-hour period) is not constant. Loud ringing of a bell produced the opposite effect on the bioelectrical activity of the cortex and on the reticular formation. Much depends, of course, on the functional condition of the brain.

The above conclusions were reached on the basis of experiments on three dogs which had electrodes implanted in the rostral part of the reticular formation and in the parietal and occipital zones of the cerebral cortex.

86. Cardiac Changes in People Exposed to Increased Atmospheric Pressure for a Long Period

"The State of Cardiac Activity in People Working Under Conditions of Increased Atmospheric Pressure," by V. I. Koled'nov, Leningrad Sanitation-Hygiene Medical Institute; Moscow, Gigiyena Truda i Professional'nyye Zabolevaniya, No 8, Aug 62, pp 30-35

This report discusses results of a study conducted on 96 drivers to determine the volumetric indexes of their cardiac output. The divers were from 22 to 45 years old, and their periods of employment as divers ranged from 2 to 20 years. Healthy persons who were not divers but whose work required physical exertion were used as controls.

The diastolic heart volume of the divers was found to exceed the heart volume of controls by 136 milliliters. Approximately the same relationship was found to exist with respect to the systolic heart volume. It is concluded that substantial changes in cardiac activity take place in persons who have been subjected to the effects of increased atmospheric pressure for a long period.

87. Book on Methods of Studying Nervous System Published

Elektrofiziologicheskiye Metody Issledovaniya Nervonoy Sistemy  
(Electrophysiological Methods of Studying the Nervous System),  
by V. V. Parin, Medgiz, Moscow; Moscow, Vestnik Akademii  
Meditsinskikh Nauk SSSR, No 10, 1962, inside back cover

"The book is intended for a wide circle of scientific workers.

"It contains material from lectures on electrophysiology of the nervous system which were read at a methodological seminar held in April 1961. These lectures were read at the Institute of Normal and Pathological Physiology, Academy of Medical Sciences USSR. The material from the lectures is supplemented by new sections. A need for such a book was felt long ago. This need has increased greatly as a result of the vigorous growth and ever increasing utilization of technical methods of investigation in physiological experiments."

Public Health

88. New Aerosol Generator

"News in Brief"; Moscow, Meditsinskiy Rabotnik, Vol 25, No 72,  
7 Sep 62, p 3

"Aerosol generators designed for the control of different infections were developed by the scientists of the Institute of Chemical Kinetics and Combustion of the Siberian Branch of the Academy of Sciences USSR. These apparatus are to be installed in public places: conference halls, establishments, children's nursing homes, cinema theaters, and other places. The generators decontaminate the air, saturating it with an artificial fog of triethyleneglycol, a substance which kills the causative agents of infections, including the influenza virus. The generator is simple in design and is inexpensive."

89. Attempt at Air Purification in Georgian SSR

"Control of Air Pollution," by O. Shalamberidze, Deputy Director of the Scientific Research Institute of Sanitation and Hygiene, Georgian SSR, Tbilisi; Moscow, Meditsinskiy Rabotnik,  
17 Jul 62, p 3

Various industrial enterprises, particularly ferrous metallurgy and chemistry, have been going through a phase of vigorous expansion in the Georgian SSR, increasing the danger of excessive air pollution.

According to the author of this article, this constitutes a threat to health and presents a challenge to agencies of sanitation control and scientific research institutes of hygiene and sanitation.

The Scientific-Research Institute of Sanitation and Hygiene, Ministry of Health Georgian SSR, and Sanitary Epidemiological Stations of the Georgian SSR are conducting a survey of air pollution by large industrial establishments. They expect to determine the extent of this pollution and its potential threat to human health.

The Georgian State Sanitary Inspectorate suggested in 1960 that 32 air purifying structures be installed in 11 industrial establishments in the Georgian SSR. The economic plan provided for the installation of such structures in only two industrial establishments. Construction of 25 air purifying structures was suggested for 1962, but provisions were made for only 7.

90. Functional Shifts in Cardiac Activity During Physical Stress and Nervous Tension Discussed

"Functional Changes in the Cardiovascular System, As Evidenced Cardiographically, which Occur While Performing Work Involving Physical and Nervous Stress," by Ye. V. Podoba, V. P. Solov'yeva, and L. A. Vodolazskiy, Institute of Industrial Hygiene and Occupational Diseases, Academy of Medical Sciences USSR; Moscow, Gigiyena Truda i Professional'nyye Zabolevaniya, No 8, Aug 72, pp 3-10

This report contains the results of a comparative study of functional changes in the cardiovascular systems of two groups of people, one performing work involving great physical exertion, the other performing work involving mental and nervous stress. A specially developed method for recording electrocardiograms directly during work performance was used. This made it possible to observe the changes that occurred in the two occupational groups and to note specific alterations in the electrocardiogram the moment high nervous and emotional stress became evident.

Such studies may be of particular significance for medical evaluation of the physical capacity to work. Results of such studies may also serve as a basis for recommending the most rational regimen of work and rest to prevent diseases of the cardiovascular system in various industrial establishments.

91. Cardiovascular Changes Associated With Intense Noise

"On the State of the Cardiovascular System Under Conditions of Exposure to the Action of Continuous Noise," by N. N. Shatalov, A. O. Saytanov, and K. V. Glotova, Institute of Industrial Hygiene and Occupational Disease, Academy of Medical Sciences USSR; Moscow, Gigiyena Truda i Professional'-nyy Zabolevaniya, No 8, Aug 62, pp 10-14

This report discusses results of the examination of 300 workers employed in industrial establishments where noise of medium and high frequency and of intensities ranging between 85 and 120 decibels was constantly present. Although 130 of 300 workers examined complained of a disagreeable sensation in the area of the heart during excitement in the course of their work, pathologic changes were noted in only 13 workers, who had a history of organic heart disease to start with. Bradycardia, with a tendency toward retardation of intraventricular conductivity and depression of the T-wave, was manifested following physical stress and at the end of the workday. Functional changes in the cardiovascular system were more pronounced and were encountered more often in workers exposed to noise ranging between 114 and 120 decibels in intensity.

92. Maximum Physical Development of Children Discussed

"The Main Results of Scientific Research Conducted in 1960 and 1961 in the Field of Pediatrics and Further Tasks Confronting the Science of Pediatrics," by M. Ya. Studenikin and R. A. Kalyuzhnaya, Institute of Pediatrics, Academy of Medical Sciences USSR; Moscow, Vestnik Akademii Meditsinskikh Nauk SSSR, No 10, 1962, pp 3-14

The authors examine the results of studies conducted by 14 scientific research institutes of pediatrics and by 150 chairs of pediatrics of medical vuzes in the USSR. The studies were conducted during 1960 and 1961 and dealt with the development of preschool age children in a new type of an educational establishment: the "nursery-kindergarten." Unification of nurseries and kindergartens was deemed desirable in order to reduce the incidence of communicable diseases among preschool age children. This is to be accomplished by placing emphasis on physical training, proper nutrition, and maintenance of proper hygienic conditions. Closer cooperation among members of the medical profession, biochemists, immunologists, virologists, and electrophysiologists is expected to lay the groundwork for disciplined diagnosis and to help the "nursery-kindergarten" children remain healthy and active.

93. Physical Development of Boarding School Students

"Physical Development of Students of Moscow Boarding Schools," by Ya. Leont'yev, Division of the Organization of Child Health, State Scientific Research Pediatrics Institute, Ministry of Health RSFSR; Moscow, Voprosy Okhrany Materinstva i Detstva, Vol 7, No 8, Aug 62, pp 69-72

This article discusses results of a 1961 survey of the physical development and health of children attending seven Moscow City Boarding Schools. A total of 1,818 boys and 708 girls was examined. The physical development of the majority of these children was found to be average or above average. The development of girls was found to be generally much better than that of boys. Little difference in health was found between boarding school students and those attending ordinary schools.

Enrollment in boarding schools, organized in the USSR in response to resolutions of the 22d Congress of the CPSU, is expected to grow. In connection with this, information concerning the health and physical development of boarding school children is considered to be essential and of practical significance.

94. Role of School Physician in a Reorganized School of General Education

"Pressing Tasks of the Activity of a School Physician," by Prof A. G. Tseytlin; Moscow, Pediatrriya, No 8, Aug 62, pp 3-8

This report stresses the significance of reorganization of the system of general education in the USSR and the increasing importance of the school physician as the integration of education and industry effective.

Each school must have a competent, full-time school physician whose competence must be mainly in the fields of pediatrics and school hygiene. He must be constantly aware of the health needs of the children. Although his duties are organically tied in with life in his assigned school, he must be familiar with the needs of people living in the district where the school is located. As a vocational guidance officer, each school physician must be familiar with the mental and physical capacity of children belonging to various age groups; he must be able to recognize individual differences and correct defects that may interfere with the growth and development of each child. The organization of extracurricular activities and supervision over athletics, the school physician.

The Soviet school is currently training the future builders of a communist society, the people who will live and work under communism.

95. Aerosol Concentration Over Prague

"Chemical Composition of Solid Industrial Aerosols in the Prague Atmosphere," by K. Spurny, Institute of Physical Chemistry of the Czechoslovak Academy of Sciences, Prague; Prague, Ceskoslovenska Hygiena, Vol 7, N 7, Aug 62, pp 430-434

The average daily concentration of aerosols in the Prague atmosphere in the first half of 1959 was studied by means of membrane filters. It was found that the daily concentrations varied in the course of the week as well as in the course of the year's seasons in that there are maximum concentrations in the middle of the week and minimum on Sundays. Partial chemical analysis of these aerosols was performed and showed that soot is hygienically the most important part of Prague industrial aerosols and that its concentration exceeds three times the allowed limit. The possibilities of how to purify and improve the atmosphere of Prague are discussed. (FOR OFFICIAL USE ONLY) (COPYRIGHT by the State Medical Publishing House, Prague, 1962)

Surgery96. Plastic Heart Parts for Humans and Animals

"'Spare Parts' to ...the Heart"; Kiev, Pravda Ukrainy  
9 Jun 62, p 3

Yu. N. Krivchikov, scientific associate of the heart surgery clinic, Ukrainian Scientific-Research Institute of Tuberculosis and Abdominal Surgery, has designed an artificial tricuspid heart valve, under the supervision of Lenin prize winner, Corresponding Member of the Academy of Medical Sciences USSR N. M. Amosov. The valve is made of "teflon," a synthetic material, and is secured in a special plexiglas ring for intussusception of heart tissue. The artificial tricuspid heart valve has been tested on dogs and found to perform well the work of a natural valve. Use of the tricuspid heart valve is being contemplated in cases involving treatment of congenital and acquired vitium cordis, particularly during stenosis and mitral valve insufficiency which do not yield to surgery. The new prosthesis may help the scientists of Ukrainian SSR to design valve pumps for artificial blood circulation apparatus.

97. Suturing With Help of Apparatus UKL-60

"Application of the Apparatus UKL-60 in Gastric Surgery,"  
by Ye. M. Borovyy, Surgical Department of the Rovno Oblast  
Hospital; Kiev, Klinicheskaya Khirurgiya, Vol 42, No 8,  
Aug 62, pp 24-26

UKL-60, an apparatus previously used for the suturing of the pulmonary stump following pneumonectomies, is now being successfully used also in cases of surgical interference in the abdominal cavity. Since 1961 the apparatus was used in 15 surgical cases requiring resections of the intestine. The apparatus uses tantalum clamps which securely and atraumatically suture the stumps of the organs. UKL-60 is also used in halting hemorrhages in the stomach walls when a gastro-intestinal anastomosis is applied. The apparatus is particularly useful in cases in which the surgical reconstruction of the stomach is necessary.

98. Apparatus PKS-60 for Circular Suturing

"Mechanical Suture for Esophagus-Intestinal (Gastric) Anastomosis," by T. V. Kalinina, S. I. Babkin, V. S. Kasulin, and G. V. Astaf'yev, Scientific-Research Institute of Experimental Surgical Apparatus and Instruments; Kiev, Klinicheskaya Khirurgiya, Vol 42, No 8, Aug 62, pp 81-82

Apparatus PKS-60, which makes possible an anastomosis of the esophagus-gastric and esophagus intestinal systems and the application of circular sutures, is described in the article. Operating through the thoracic cavity, the surgeon resects the esophagus from the stomach. A part of the stomach is then removed. In case of necessity, the stomach is completely removed. The apparatus PSK-60 is then used to bring the stumps of the resected parts together, and a circular suture is applied.

99. New Synthetic Fiber

"An Antimicrobial Fiber"; Moscow, Meditsinskiy Rabotnik, Vol XXV, No 72, 7 Sep 62, p 1

"A new synthetic fiber was developed at the Leningrad Textile Institute imeni S. M. Kirov and the Institute of Organic Synthesis of the Academy of Sciences USSR. Analyses carried out at the Leningrad Bacteriological Laboratory established that the new fiber is sterile and is not contaminated by bacteria of the air and water. Threads of the fiber may be used, without preliminary sterilization, for the suturing of wounds; products made from this material may be used in the same manner as cotton and bandages."

100. Surgical Application of Polymers

"Polymers in Medicine," by T. Daurova, a Candidate of Medical Sciences; Moscow, Meditsinskiy Rabotnik, No 72, 7 Sep 62, p 3

The use of polymers in the USSR has begun with the use of plastics in cranial defects and the application of sutures and ligatures prepared from polymer materials. To be applicable, polymers must be biologically inert, strong, elastic, pliable, and easily sterilized. By biological inertness is understood the property to resist infections and inflammations and to induce no allergies. They must be nonblastomogenic. Experience has proven that many of the polymers possess these properties.



Not all of the polymers, however, are equally inert. The most inert of the polymers are polytetrafluorethylene (teflon, polyfen) and polyethyleneterephthalate (lavsan, terilen); least inert were found to be the different kinds of polychlorovinyls and polyurethan (porolon). Polymers are now utilized also in traumatology and orthopedics. These are endoprosthetic products used for the replacement of joints and parts of the skeleton. The application of polymers for the replacement of joints, however, has not as yet been properly developed. The possibility that polymer compounds will be used for the local therapy of burns is also envisaged. There is no doubt that chemistry will, in the future, synthesize new high-molecular compounds which will considerably broaden the application of alloplastic materials in surgery.

101. Review of Book on Military-Field Surgery

"Military-Field Surgery," edited by A. A. Vishnevskiy and M. I. Shrayber; reviewed by V. Shishkin, Doctor of Medical Sciences, Kalinin; Moscow, Meditsinskiy Rabotnik, Vol 25, No 71, 4 Sep 62, p 4

The book fills a long existing void in works bearing on surgical procedures under wartime conditions. All the problems of general and special military-field surgery are clearly presented. The characteristics of the specific features of military-field surgery and a brief historical review of its development are dealt with in the first and introductory chapter. The chapters of the book in which the injuries inflicted by nuclear weapons are described are of particular interest. Several chapters are devoted to the problems of special military-field surgery, the symptoms and course of injuries to different parts of the body, and the methods of their treatment. The chapters on neurosurgery were written by B. A. Samotokin, while the chapters dealing with jaw and other facial injuries were written by M. V. Mukhin and V. V. Volkov. D. Kuvshinskiy, who wrote the foreword to the book, says that the book will undoubtedly have a positive influence on the teaching of military-field surgery. The book is well illustrated."

102. "Dry Heart" Operations in Bulgaria

"Success of Bulgarian Cardiovascular Surgery"; Sofia, Rabotnichesko Delo, 19 Oct 62, p 4

At the chest and heart section attached to the Chair of Military Field Surgery of the Higher Military Medical Institute, three "dry heart" operations have been performed by Prof G. Krustinov, Dr A. Stoychev, Dr M. Milev, Dr Yovcho Topalov, Dr M. Krachunov, and Dr P. Mikhaylov. For 3 years, this group has been experimenting on some 50 dogs, developing the surgical procedure. On 10 October, using Bulgaria's first extracorporeal blood circulating apparatus, an operation was performed on Ivanka Dochova, a 12-year-old having a congenital heart defect. The child's blood circulation was stopped for 15 minutes, and its function was taken over by the "artificial heart-lung" apparatus. During this time, the heart was opened and the defect repaired. This was accomplished under intratracheal narcosis.

Therapy103. Mepholin -- A Reducing Preparation

"Mepholin -- Mepholinum," by G. Ul'yanova; Moscow, Kardiologiya, Vol 2, No 3, May/June 62, p 86

Mepholin is the hydrochloride of 2-phenyl-3-methyl-morpholine. It is a white crystalline powder, readily soluble in water. Curbing the appetite is its basic action. When used, therefore, in combination with a diet, it is a good reducing agent. Its use is contraindicated in cases with hypertension, disturbed coronary and cerebral circulation, atherosclerosis, certain tumors, and sugar diabetes. It is administered internally in the form of tablets, each containing 0.025 gram of the drug, twice each day, 30 minutes before meals.

104. Effect of Monomycin on Purulent Infections

"Application of Monomycin, an Antibiotic, in the Therapy of Purulent Infections of the Lungs and Pleura," by N. I. Gerasimenko, A. P. Kuz'michev, and M. V. Petrosyan, Department of Pulmonary Diseases and Biochemical Laboratory of the Institute of Thoracic Surgery, Academy of Medical Sciences USSR; Moscow, Antibiotiki, Vol 7, No 8, Aug 62, pp 757-761

Results of the use of monomycin, an antibiotic with a broad spectrum of action, on 47 patients suffering from purulent affections of the lungs and pleura are reported in the article. A preliminary examination of the patients established that the microflora of the affected organs was sensitive to monomycin. The antibiotic was administered to the patients in doses of 750,000, 500,000, and 250,000 units. It was established that monomycin can be successfully used in the therapy of lung and pleura purulent infections; it can also be used successfully in the therapy of infected traumas; best results in the therapy of pleura empyema of staphylococcus origin were obtained by the intrapleural administration of the antibiotic; no side reaction was noted in the patients as a result of the application of the drug.

105. Some Data on the Application of Rare Metals in Medicine

"Application of Rare Metals in the Therapy of Different Diseases," by A. G. Baychikov, V. P. Ingerman, and A. G. Serebryanaya; Moscow, Meditsinskaya Promyshlennost' SSSR, Vol 16, No 8, Aug 62, pp 18-25

Data on the physiological activities of some of the rare metals and rare earth metals when used in the therapy of different diseases are presented. Mentioned are lithium, cesium, gallium, and thallium, as well as a number of rare earth metals. Rare earth metals act as catalysts and, like the phosphatases, help in the rapid hydrolysis of phosphoric acid esters. The latter play

an important role in the metabolic processes of the organism. Many of them are active antibacterial and antimicrobial preparations. They are also used as blood coagulants and in the therapy of cardiovascular, gastrointestinal, and other organic diseases. With the greater availability of these metals, the problem of their possible application in medicine has acquired greater urgency. Further research in connection with this problem is urged by the authors.

106. Riboflavin-Mononucleotide -- a New Vitamin

"Riboflavin-Mononucleotide"; Moscow, Meditinskiy Rabotnik, Vol 25, No 72, 7 Sep 62, p 3

Riboflavin-mononucleotide, the phosphoric ester of riboflavin, was synthesized at the Laboratory of Coenzymes of the Scientific-Research Institute of Vitamins. The ready solubility of the drug in water makes it possible to utilize it for intramuscular and subcutaneous administration in the therapy of B<sub>2</sub>, hypovitaminosis in the therapy of affections of the cornea and conjunctiva, chronic dermatoses, and phytodermatoses. No contraindications to the application of the drug have been established; it produces no side reactions.

107. Yugoslavs Report on Soviet Parapsychology

"Magnet on the Nape of the Neck"; Belgrade, Mladost, 12 Sep 62, p 12

[The introduction to the article describes the use of hypnotic suggestion in the 1890s by Cesare Lombroso, "a psychologist and professor at the University of Pavia in Italy," in his experimentation with neurotic patients and notes the behavioral changes caused by applying a magnet to the nape of the patient's neck. Later experiments of the same type by Bianchi and Sommers are also discussed.]

The present degree of scientific achievement and the connection discovered between parapsychology and physiology did not exist in Lombroso's time, and he, thus, could not give a scientific explanation of his experiments. Today, however, it has been frequently proved that nervous phenomena are electrical in nature. This discovery explains the experiment with magnets, and today's scientists are forging ahead with new experiments.

Lombroso's forgotten experiments, previously noted only as very interesting cases, have, in recent years, greatly aroused the attention of scientists. A group of Soviet scientists, headed by Professor Vasilev, has recently repeated his experiments. Experiments announced in the Institute for Parapsychology in Leningrad have enjoyed complete success.

Soviet scientists are now endeavoring to explain scientifically all the variants of the influences of the magnetic field on the function of the grain. The fact that nervous phenomena are of an electrical nature offers great hope that scientists will be able, with the aid of a magnet and electric energy, to create something that now seems more like fantasy. The scientists believe that, with the aid of a magnet and electric energy, they will be able to treat, not only hysterical and neurotically unstable persons, but also the mentally ill.

### Toxicology

#### 108. Central Action of Cholinolytic, Cholinomimetic, and Anticholinesterase Substances

"Permeability of the Hematoencephalic Barrier for Ionized and Nonionized Substances and the Search for Cholinolytic, Cholinomimetic, and Anticholinesterase Substances of Central Action," by E. V. Zeymal' and M. Ya. Mikhel'son, V sb.: "Gisto-Gematich. Bar'yery," (Collection: "Histohematic Barriers"), Moscow, Academy of Sciences USSR, 1961, pp 166-178 (from Referativnyi Zhurnal -- Biologiya, No 15, Aug 62, Abstract No 15 Tl, by N. Fruyentov)

"A review of our own and other literary data indicates that the central action of cholinolytic, cholinomimetic, and anticholinesterase substances is sharply diminished upon their transformation from compounds with ternary nitrogen in their molecules into their quaternary analogs. This is apparently due to the difficulty with which quaternary compounds with a permanent positive charge in their molecules penetrate from the blood into the brain. A quantitative study of the ability of these compounds to penetrate from the blood into the brain was carried out by using the methylsulfomethylate of O-ethyl-S-beta-ethylmercaptoethyl ester of methylphosphinic acid, an organophosphorus anticholinesterase substance which contains a positive charge S in the molecule (preparation Gd-52; I; as an example). The calibrated curves obtained in vitro, reflecting the relationship between the cholinesterase depression of a given tissue and the concentration of I, made it possible to calculate the concentration of I in tissue in vivo by determining the cholinesterase depression following the administration of I to the experimental animal. Three to four times more of I was found in the muscles and eight times less in the brain of a frog than would have been normally distributed. Following the administration of I to a cat in a dose of 0.5 gamma per gram of weight, the quantity of I found in the midbrain, medulla, oblongata, cortex, and cerebellum was only 0.014 to 0.03 gamma per gram of weight (the differences in the content of I in these organs were insignificant and statistically unreliable). In the "tail" nucleus, 0.04 gamma per gram weight of I was found. Examples of the utilization of this knowledge in the quest for new medicinal substances with a central action or lacking central action are cited. Substances with central action should be sought among tertiary compounds, while substances lacking such or with weakly expressed central action -- among quaternary ammonium compounds.

The dicholinic ester of suberic acid (coroconium, subcholine), an effective stimulant of reflex action, which produces no side reactions related to central action, was found among such compounds with the cooperation of chemists."

109. Safeguards in the Handling of Organophosphorus Compounds

"Organophosphorus Compounds Used in Agriculture," by J. Brzozowski and B. Szucki, Ochrona Pracy, 1962, 1, pp 9-11 (from Meditainskiy Referativnyy Zhurnal, Section 7, No 7, Abstract No 2600, by I. V. Sanotskiy)

"Briefly described are the toxic properties of organophosphorus compounds used in agriculture, the paths of their entry into the organism, symptoms of intoxication, and first aid to be given in cases of such intoxications. The wearing of protective clothes, footwear, gloves, and masks, the thorough cleaning of the clothes after work, and the observation of safety regulations and safety techniques in the handling, transportation, and storing are recommended as prophylactic measures for the prevention of occupational intoxications. Systematic control of cholinesterase activity in the blood should be exercised. Contraindications for employment for work with the above-mentioned preparations are skin diseases, alcoholism, asthma, and chronic diseases of the respiratory organs, circulation, digestion, liver, kidneys, eyes, and others. Women, juveniles, and children, as well as persons recently recovered from infectious diseases, should not be employed for work with these substances."

110. Effect of Chronic Granozan Intoxication on the Organism

"State of the Nervous System at Different Periods of Chronic Intoxication by Granosan," by N. D. Mukhtarova, Clinic of Nervous Diseases, Kirgiz State Medical Institute; Tashkent, Meditaninskiy Zhurnal Uzbekistana, No 5, May 62, pp 24-27

Results of observations of 110 patients suffering from the early stages of intoxication by granozan, a chemical used widely in agriculture for the control of diseases affecting grain, industrial, and vegetable crops, are reported in the article. The active principle of granozan is ethylmercuriochloride. The observations established that granozan is highly toxic, affecting primarily the nervous system, with localization predominantly in the diencephalic stem area of the cerebrum; the organic modifications induced by granozan are of a stable nature; the effect of granozan on the central nervous system may continue for some time after the intake of the chemical.

111. Psychopharmacological Preparations

"New Psychomimetic Compounds," by S. Rump, Neurol. Neurochirurg. Psychiat. Pol. (Poland), 1962, 1, pp 111-115 (from Meditzinskiy Referativnyy Zhurnal, Section 9, No 9, Sept 62, Abstract No 2296, by A. B. Smulevich)

"Following Hofman's discovery (1943) of the psychogenic properties of lysergic acid diethylamide, a whole series of new preparations which differ in their chemical structures but are similar in their action have been synthesized. Preparations psylocybin and psilocyn, which, like LSD, contain an indol ring, and preparations sernyl and the derivatives of benzylane N-alkyl-3-hydroxypiperidine, which differ in their chemical structures from psylocybin and psilocyn, are discussed. Psylocybin was synthesized by Hofman in 1953. Chemically it is the orthophosphoric ester of 4-hydroxy-N-dimethyltryptamine. When taken internally in doses of 4 to 10 milligrams, it produces symptoms similar to those produced by the administration of lysergic acid. These are characterized in particular by manifestations of depersonalization, disturbed orientation, and intense visual hallucinations of yellow and red colors and are accompanied by euphoria, a sensation of deafness lasting several hours, general debility, a sense of tranquility, and an indifference to surroundings. It is in this tranquilizing effect that psylocybin differs from lysergic acid. The preparation is little toxic. By replacing the phosphorus group in psylocybin by an OH group, a new compound given the name of psilocyn is obtained. It is similar to psylocybin in its effect on the organism.

"Chemically, sernyl is either the chlorine or bromine hydrate of 1-piperidine-1-phenyl-cyclohexane. Its administration induces disturbed attention, disturbed motor activity, manifestations of depersonalization, disturbed thinking, negativism, a sense of isolation, and a feeling of enmity to the surroundings. Preparations with a psychomimetic action are found also among the derivatives of benzylane N-alkyl-3-hydroxypiperidine. These are preparations I. B. 318, I. B. 336, and I. B. 868. These preparations induce in people a wide spectrum of disturbances: desorientation, auditory and visual hallucinations, and mood changes; the latter are frequently accompanied by acute paranoic reactions. A parasympatholytic effect is exhibited at the same time. Preparation I. B. 868 acts also as a stimulant of the iproniazid type. Preparation I. B. 329 (ditran) exhibits a prolonged psychomimetic effect. Chemically, it is the ester of N-ethyl-3-piperidine and cyclopentylglycolic acid. The prolonged stimulating action of ditran is utilized in the therapy of depressive states. It is the author's opinion that the clarification of the mechanism of action of the psychomimetic drugs may serve as a key for the determination of the reasons for psychotic disturbances."

112. Effect of Dendrodochine on Animals

"Toxicity of Dendrodochine for Certain Species of Laboratory Animals," by Yu. R. Malashenko; Kiev, Mikrobiologichnyy Zhurnal, Vol 24, No 4, pp 21

Data obtained in the investigation of the sensitivity of different species of animals to dendrodochine, a toxin formed by the fungus *Dendrodochium toxicum* Pidolf. and Bilal, are presented in the article. The minimal LD, LD<sub>50</sub>, and LD<sub>100</sub>, the probability of the lethal results, and authentic dose limits for the entire lethality curve have been established. The statistical processing was carried out by a method which was suggested by the author. The principle of this method consists of the determination of the authentic regression limits of Y over X or X over Y, with Y representing the mortality rate in percentages and X representing the doses of lethality.

113. Interrelationship of the Structure and Properties of Quaternary Groups

"Role of Different Quaternary Groups in the Origin of Parasympathicolytic and Ganglioblocking Properties of Tropenines," by Gyorgy Lajos, Doda Margit, and Nador Karoly, Magyar Tud. Akade. Biol. es Orv. Tud. Oszt kozl (Hungary), 1961, 12, No 1-2, pp 167-175, (from Referativnyy Zhurnal -- Biologiya, No 15, Aug 62, Abstract No 15 T10, by A. Ivanova)

"The parasympathicolytic and ganglioblocking actions of methyl-bromobenzyl-, and phenylbenzyl quaternary derivatives of the benzylic ester of tropine and the xanthine 9-carboxylic ester of tropine (I) were studied in vivo and in vitro. The methyl quaternary derivatives of (I) exhibited the most potent acetylcholinolytic and sympathicolytic action, considerably surpassing in their effect the effect of novatropine. It was established also that the chemical structure of the compounds under investigation (the different position of the quaternary groups) plays an important role in the origin of their ganglioblocking action."

114. Effect of Pentamin, Hexonium, and Dicoline on Visual Functions

"Effect of Some of the Ganglioblocking Preparations on Visual Functions," by I. Bobrova and I. P. Popov, "Materialy 2 Vses. Konferentsii Oftal'mologov, 1961." Tbilisi, Resp. Nauchn. O-va Oftal'mologov Gruz. SSR ("Data on the Second All-Union Conference of Ophthalmologists 1961. Tbilisi, Republican Scientific Association of Ophthalmologists, Georgian SSR), 1961, pp 294-295 (from Referativnyy Zhurnal -- Biologiya, No 15, Aug 62, Abstract No 15 T138)

"Pentamin, hexonium (I; 10 milligrams per kilogram body weight) and dicoline (5 milligrams per kilogram body weight) were administered intramuscularly and retrobulbarily to rabbits. The preparations reduced intraocular pressure by 3 to 8 millimeters of mercury within 1.5 to 3 hours, dilated the pupils and the

episcleral vessels, and decreased arterial pressure by 15 to 25 millimeters of mercury. Twenty-two patients suffering from iridocyclitis, keratouveitis, and the acute onset of primary and secondary glaucoma received retrobulbarly a 25 percent solution of I in doses of one milliliter. The pain syndrome disappeared in all of the patients; a marked dilation of the pupils and hypoesthesia of the cornea were noted. I exhibited a hypotensive action which was particularly expressed in eyes with increased intraocular pressure (decreased by 8 to 12 millimeters on the anercury columns)."

115. Czechoslovak Report on Acute Poisoning With Organophosphates

"Group Acute Poisoning With Effective Organic Phosphates,"  
M. Sevcik, B. Chalupa, C. L. Hrazdira, E. Klhujkova, and J Synkova  
of the Clinic for Occupational Diseases in Brno, headed by Docent  
Dr J. Vyskocil; Prague, Pracovni Lekarstvi, Vol 14, No 7, Sep 62,  
pp 317-320

The article describes the course of an acute organic phosphate poisoning of six laboratory workers. "Tabun" was the chemical involved. The poisoning most severely affected the central nervous system, as was revealed by neurological, electroencephalographic, and psychological examinations. Among the outstanding neurological signs were miosis, vegetative disfunction, and extrapyramidal and cerebellar manifestations. The EEG records showed sleep activity and discharges of theta waves; only in one case was there slow focal activity. Mental disorders-manifested especially in the form of difficult discrimination in recognition tests were frequent. Changes in the activity of plasma and erythrocyte cholinesterase were analyzed. Although the effects were mild to moderate in degree, the symptoms disappeared only slowly.  
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116. Czechoslovak Tests on Cholinesterase

"Excretion of p-Nitrophenol and Behavior of Cholinesterase  
Following Repeated Administration of Parathion in Rats," by  
D. Vlachova of the Institute of Work Hygiene and Occupational  
Diseases in Prague, headed by Prof J. Teisinger, MD, Dr of Sci-  
ences; Prague, Pracovni Lekarstvi, Vol 14, No 7, Sep 62,  
pp 323-324

Experiments on 15 female and 5 male rats revealed that repeated parathion intoxication led to considerable fluctuations of p-nitrophenol excretion. On the average, however, the same level (37 percent in females 52 percent in males) was maintained. Cholinesterase levels, on the other hand, are continually reduced in value with repeated exposures. In this case, depression is greatest after the first exposure. Identical doses of parathion led to greater reduction of cholinesterase activity in females than in males. (FOR OFFICIAL USE ONLY) (COPYRIGHT by the State Medical Publishing House, Prague, 1962)



V. SCIENCE NEWS ITEMS

Aid to Underdeveloped Countries

117. Czechs Send Medicines to Algeria

"Medications for Algeria"; Moscow, Izvestiya, 12 Aug 62,  
p 4

"Prague, 11 August (Tass). An IL-18 plane carrying medications landed this evening at the airport in the city of Algiers, the ChTK agency reports.

"The medications, with a value of 1.5 million new francs, were sent by Czechoslovakia as a gift to the Algerian people."

118. Public Health in North Viet-Nam

"New Developments in Viet-Nam," by Dr Pham Ngoc Thach, Minister of Health of the Democratic Republic of Viet-Nam, Hanoi; Moscow, Meditsinskiy Rabotnik, Vol 25, No 70, 31 Aug 62, p 4

Considerable successes have been attained in North Viet-Nam in the field of public health during the 17 years since the liberation of the country. An intense effort is being made to control infectious and epidemic diseases in the country. More than 90 percent of the people have already been vaccinated against smallpox, cholera, and typhoid diseases. A live poliomyelitis vaccine is being administered on a wide scale. The BCG vaccine is being used as a prophylactic measure to control tuberculosis. A plan for the eradication of malaria from the country has been developed by the Institute of Malarial and Microbiological Research. A drug for the therapy of trachoma was recently isolated from a plant indigenous to the area. Other medicinal plants are being processed to obtain various medicinal preparations. Considerable successes have been achieved also in surgery. Hypothermia is now being applied in major surgery at the Phu Doan hospital.

Conferences

119. Recent Soviet Conferences in Medicine and Biology

The conferences listed below were reported or announced in recent issues of Soviet periodicals. Included in the listing are the date and location of the conference, sponsoring organizations, and source. Unless otherwise indicated, it is assumed that there was no non-Soviet participation in the conferences.

119. Recent Soviet Conferences in Medicine and Biology

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a. Scientific Conference on Problems of the Application of Theoretical Concepts and Methods of Cybernetics in Medicine; March 1962, Leningrad; sponsored by the Military-Medical Order of Lenin Academy imeni S. M. Kirov. (Izvestiya Vysshikh Uchebnykh Zavedeniy -- Priborostroyeniye, Vol 5, No 5, 1962, p 141)

b. Session on the Biological Aspects of Cybernetics; 3-5 April 1962; sponsored by the Bureau of the Department of Biological Sciences of the Academy of Sciences USSR and the Scientific Council on the Complex Problem "Cybernetics." (Vestnik Akademii Nauk SSSR, No 8, Aug 62, p 125)

c. Symposium on Cybernetics /and problems of the use of electronics and cybernetics in medicine and biology/; end of 1961, Tbilisi. (Izvestiya Vysshikh Uchebnykh Zavedeniy -- Priborostroyeniye, Vol 5, No 5, 1962, p 141)

d. Scientific Session Devoted to Some Problems of Cybernetics and Electron Optics in Surgery; November 1962, Moscow; sponsored by the Institute of Surgery imeni A. V. Vishnevskiy of the Academy of Medical Sciences USSR. (Izvestiya Vysshikh Uchebnykh Zavedeniy -- Priborostroyeniye, Vol 5, No 5, 1962, p 141)

e. Second All-Union Conference on the Use of Radio Electronics in Medicine and Biology; 24-28 April 1962, Leningrad; sponsored by the Scientific-Technical Society of Radio Engineering and Electrical Communications imeni A. S. Popov, the Ministry of Health USSR, the All-Union Scientific Council of Radio Physics and Radio Engineering of the Academy of Sciences USSR, the State Committee of the Council of Ministers USSR on Radio Electronics, and the Academy of Medical Sciences USSR. (Izvestiya Vysshikh Uchebnykh Zavedeniy -- Priborostroyeniye, Vol 5, No 5, 1962, p 140)

f. Scientific Session of the All-Union Scientific-Research Institute of Medical Instrumentation and Equipment; February 1962. (Izvestiya Vysshikh Uchebnykh Zavedeniy -- Priborostroyeniye, Vol 5, No 5, 1962, p 141)

g. 14th All-Union Congress of Hygienists and Sanitation Physicians; 13-17 February 1962, Moscow; probably sponsored by the All-Union Society of Hygienists and Sanitation Physicians; representatives from Bulgaria, Hungary, Czechoslovakia, and Poland. (Gigiyena Truda i Professionalnyye Zabolevaniya, No 7, Jul 62, p 54)

h. Joint Scientific Session Devoted to Problems of Labor Protection and Prophylaxis of Occupational Diseases and Traumatism; 21-23 November 1961, Gor'kiy; sponsored by the Institute of Labor Hygiene and Prophylaxis of Diseases, the Institute of Traumatology and Orthopedics, the Institute of Skin-Venereal Diseases, the Gor'kiy Oblast Department of Health, the Gor'kiy Oblast Council of Professional Unions, and the Gor'kiy Sovnarkhoz. (Gigiyena Truda i Professional'nyye Zabolevaniya, No 7, Jul 62, p 57)

1. Second Zoological Conference of the Lithuanian SSR; 8-12 May 1962, Vil'nyus; sponsored by the Academy of Sciences Lithuanian SSR. (Vestnik Akademii Nauk SSSR, No 8, Aug 62, p 77)

j. Conference on the Biological Role of Microelements in the Human and Animal Organism in East Siberia and the Far East; 27 February-1 March 1962, Ulan-Ude. (Izvestiya Sibirskogo Otdeleniya Akademii Nauk SSSR, No 7, 1962, p 109)

#### 120. Conference on the Essence of Life

"Investigation of the Essence of Life"; Moscow, Vechernyaya Moskva, 3 Jul 62, p 1

This article reports the opening of a conference on the essence of a life. The conference was organized by the scientific council on philosophical questions of natural science of the Academy of Sciences USSR. A. N. Kolmogorov, scientist-academician and mathematician, and G. M. Frank, biophysicist, Corresponding Member of Academy of Sciences USSR, are among those who will speak.

At the present time, according to the article, there are tens of scientific institutes, hundreds of laboratories, and thousands of scientists in various fields working on the question on the essence of life in the USSR.

#### 121. 12th Congress of Czechoslovak Pediatricians

"News"; Prague, Ceskoslovenska Pediatrie, Vol 17, No 7/8, Aug 62, p 764

The 12th Congress of the Pediatrics Section of the "Jan Ev. Purkyne" Czechoslovak Medical Society will be held in Brno in June 1963. The following have been established as the main topics for consideration:

1. Blood diseases of childhood (Prof Dr Z. Brunecky, First Pediatric Clinic, Brno, will speak.)

2. Congenital developmental defects (Dr J. Kucera, UPMD not explained, Prague-Podoli, will speak.)

Persons desiring to deliver co-lectures or to make other oral contributions are to correspond directly with the above speakers. (FOR OFFICIAL USE ONLY) (COPYRIGHT by the State Medical Publishing House, Prague, 1962)

122. Fourth Czech Pharmaceutical Congress in 1963

"Fourth National Pharmaceutical Congress"; Prague, Chemicke Listy, Vol 56, No 9, Sep 62, p 1151

The Pharmaceutical Section of the "Jan Ev. Purkyne" Czechoslovak Medical Society will hold the Fourth National Pharmaceutical Congress in Gottwaldov on 20-22 May 1963. The main topic to be considered at the congress will be "Stability of Medicines."

Tentative titles of any papers to be presented at the congress are to be filed by 30 September 1962 with the preparatory committee of the congress: Preparatory Committee, Fourth National Pharmaceutical Congress, Gottwaldov, P. O. Box 14. (FOR OFFICIAL USE ONLY) (COPYRIGHT by the Publishing House of the Czechoslovak Academy of Sciences, Prague, 1962)

123. International Congress on Vitamins To Be Held in Prague

"Announcements"; Prague, Ceskoslovenska Gastroenterologie a Vyziva, Vol 16, No 6, Aug 62, p 432

The "Jan Ev. Purkyne" Czechoslovak Medical Society's Section for Gastroenterology and Nutrition will hold a congress with international participation in Prague in the spring of 1963. The congress will deal with the role of vitamins in medicine.

The congress, to be attended by outstanding scientists in vitaminology, will consider the following main topics:

1. Preservation of vitamins in food preparation technology.
2. Primary deficiencies in vitamin supply in Czechoslovakia and their effects on health.
3. Scientific bases for the utilization of vitamins in the prevention and therapy of nutritional disorders and some mechanisms of this utilization.

Prof Dr J. Masek has been charged with making preparations for the congress, and Dr M. Bohdal of the Institute for Research on Human Nutrition in Prague-Krc has been selected as secretary of the congress.

The precise dates of the congress will be published as soon as the program of the congress is defined. (FOR OFFICIAL USE ONLY) (COPYRIGHT by the State Medical Publishing House, Prague, 1962)

[Comment: This may be the Fourth International Vitaminology Congress.]

124. East German Hematologists Meet

Berlin, Das deutsche Gesundheitswesen, No 38, 20 Sep 62  
p 1652

A work conference of GDR hematologists will be held on 19-20 October 1962 on the grounds of the International Horticulture Exhibit ("Iga") in Erfurt.

Interested persons are requested to notify the Secretariat of the Medical Clinic at the Erfurt Academy, Nordhaeuser Strasse 74, immediately.

125. Report on Czechoslovak Scientific Symposium

"Symposium on the Problems of Control of Epidemiologically Important Arthropods and Their Resistance to Insecticides;"  
Prague, Journal of Hygiene, Epidemiology, Microbiology, and Immunology, Vol 6, No 3, /Sep/ 62, pp 241-384

The first article reviews the proceedings of the subject symposium held in Prague on 8-10 November 1961. The remaining 15 articles in the source appear to be papers presented at the symposium. (FOR OFFICIAL USE ONLY) (COPYRIGHT by the State Medical Publishing House, 1962)

126. Polish Orthopedic and Traumatological Conference

"Communication"; Warsaw, Lekarz Wojskowy, No 9, 1962, p 872

The Secretariat of the Main Administration of the Polish Orthopedic and Traumatological Society announces that the society's 15th Scientific Conference will be held in Lublin in May 1963. The conference will cover the following topics:

1. Damage to the cervical section of the vertebral column.
2. Treatment of rheumatic deformities.
3. Free topics /not further specified/.

The address of the Secretariat of the Main Administration of the Polish Orthopedic and Traumatological Society is: Warsaw, ulica Kopernik 43, Dr M. Koszla, Municipal Children's Hospital No 1.

\* \* \*



Washington, D.C. 20505

7 September 2004

Ms. Roberta Schoen  
Deputy Director for Operations  
Defense Technical Information Center  
7725 John J. Kingman Road  
Suite 0944  
Ft. Belvoir, VA 22060

Dear Ms. Schoen:

In February of this year, DTIC provided the CIA Declassification Center with a referral list of CIA documents held in the DTIC library. This referral was a follow on to the list of National Intelligence Surveys provided earlier in the year.

We have completed a declassification review of the "Non-NIS" referral list and include the results of that review as Enclosure 1. Of the 220 documents identified in our declassification database, only three are classified. These three are in the Release in Part category and may be released to the public once specified portions of the documents are removed. Sanitization instructions for these documents are included with Enclosure 1.

In addition to the documents addressed in Enclosure 1, 14 other documents were unable to be identified. DTIC then provided the CDC with hard copies of these documents in April 2004 for declassification review. The results of this review are provided as Enclosure 2.

We at CIA greatly appreciate your cooperation in this matter. Should you have any questions concerning this letter and for coordination of any further developments, please contact Donald Black of this office at (703) 613-1415.

Sincerely,

A handwritten signature in cursive script, appearing to read "Sergio N. Alcivar".

Sergio N. Alcivar  
Chief, CIA Declassification Center,  
Declassification Review and Referral  
Branch

Enclosures:

1. Declassification Review of CIA Documents at DTIC (with sanitization instructions for 3 documents)
2. Declassification Status of CIA Documents (hard copy) Referred by DTIC (with review processing sheets for each document)



## Processing of OGA-Held CIA Documents

The following CIA documents located at DTIC were reviewed  
by CIA and declassification guidance has been provided.

OGA Doc ID	Job Num	Box	Fldr	Doc	Doc ID	Document Title	Pub Date	Pages	Decision	Proc Date
AD0463342	78-03109A	55	1	2	88	Consolidated Translation Survey For April 1965	4/1/1965	190	Approved For Release	3/25/2004
AD0465168	78-03109A	55	1	3	89	Consolidated Translation Survey For May 1965	5/1/1965	245	Approved For Release	3/25/2004
AD0467068	78-03109A	55	1	4	90	Consolidated Translation Survey For June 1965	6/1/1965	221	Approved For Release	3/25/2004
AD0468849	78-03109A	55	1	5	91	Consolidated Translation Survey For July 1965	7/1/1965	218	Approved For Release	3/25/2004
AD0471155	78-03109A	55	1	6	92	Consolidated Translation Survey For August 1965	8/1/1965	236	Approved For Release	3/25/2004
AD0473500	78-03109A	55	1	7	93	Consolidated Translation Survey For September 1965	9/1/1965	221	Approved For Release	3/25/2004
AD0474384	78-03109A	55	1	8	94	Consolidated Translation Survey For October 1965	10/1/1965	181	Approved For Release	3/25/2004
AD0475860	78-03109A	55	1	9	95	Consolidated Translation Survey For November 1965	11/1/1965	305	Approved For Release	3/25/2004
AD0477388	78-03109A	56	1	1	96	Consolidated Translation Survey For December 1965	12/1/1965	181	Approved For Release	3/25/2004
AD0478471	78-03109A	56	1	2	97	Consolidated Translation Survey For January 1966	1/1/1966	198	Approved For Release	3/25/2004
AD0479675	78-03109A	56	1	3	98	Consolidated Translation Survey For February 1966	2/1/1966	354	Approved For Release	3/25/2004
AD0481681	78-03109A	56	1	4	99	Consolidated Translation Survey For March 1966	3/1/1966	237	Approved For Release	3/25/2004
AD0334379	78-03117A	191	1	37	4255	Status And Activities Of Prominent Scientists In Communist China In 1962	1/29/1963	53	Approved For Release	3/29/2004
AD0333974	78-03117A	190	1	35	4212	Scientific Information Report Outer Mongolia (1)	1/17/1963	27	Approved For Release	3/29/2004
AD0335202	78-03117A	195	1	13	4394	Scientific Information Report Outer Mongolia (2)	3/13/1963	27	Approved For Release	3/25/2004
AD0332657	78-03117A	183	1	13	3924	Scientific Information Report Biology And Medicine (22)	10/12/1962	76	Approved For Release	3/29/2004
AD0333147	78-03117A	185	1	30	4020	Scientific Information Report Biology And Medicine (23)	11/16/1962	90	Approved For Release	3/29/2004
AD0333427	78-03117A	188	1	13	4112	Scientific Information Report Biology And Medicine (24)	12/13/1962	84	Approved For Release	3/29/2004
AD0334160	78-03117A	190	1	10	4187	Scientific Information Report Biology And Medicine (25)	1/10/1963	69	Approved For Release	3/29/2004
AD0334612	78-03117A	193	1	10	4310	Scientific Information Report Biology And Medicine (26)	2/20/1963	112	Approved For Release	3/29/2004
AD0335309	78-03117A	195	1	32	4413	Scientific Information Report Biology And Medicine (27)	3/20/1963	110	Approved For Release	3/29/2004
AD0336242	78-03117A	198	1	16	4509	Scientific Information Report Biology And Medicine (28)	4/12/1963	81	Approved For Release	3/29/2004
AD0332575	78-03117A	184	1	6	3957	Scientific Information Report Chemistry And Metallurgy (22)	10/23/1962	47	Approved For Release	3/29/2004
AD0333164	78-03117A	187	1	2	4061	Scientific Information Report Chemistry And Metallurgy (23)	11/28/1962	65	Approved For Release	3/25/2004
AD0333857	78-03117A	189	1	22	4160	Scientific Information Report Chemistry And Metallurgy (24)	1/2/1963	57	Approved For Release	3/29/2004
AD0334310	78-03117A	191	1	20	4238	Scientific Information Report Chemistry And Metallurgy (25)	1/28/1963	52	Approved For Release	3/29/2004